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ORIGINAL COMMUNICATIONS.

I.

*Account of the LIFE and CHARACTER of the Hon. ROBERT R. LIVINGSTON, LL. D. F. A. P. S. late Chancellor of the State of New-York, President of the American Academy of Arts, of the Society for the promotion of the Useful Arts, Member of the New-York Historical Society, &c. &c.**

(With an Engraving, by Lezey.)

THE family of Livingston is an ancient and respectable one in Scotland, the head of which was ennobled by the title of Earl Newburgh, in the year 1661. That branch of the family which came to America about the middle of the 17th century, consisted of an uncle and nephew, whose numerous descendants are now settled in different parts of the United States, but principally in the state of New-York.

ROBERT R. LIVINGSTON was born in New-York, in the year 1746. His father, after whom he was named, was for

* A sketch of the life of Chancellor Livingston appeared in the "Public Characters for 1802," published by Phillips, of London. It is, however, very imperfect, and in several respects materially erroneous.

many years a judge of the supreme court, and died in the year 1775, a few days before the death of his gallant son-in-law, General Montgomery. His mother was the daughter of Colonel Henry Beekman, a gentleman of great respectability, and possessed of a large estate. She was remarkable for her good sense, fervent piety, and every virtue that could adorn the female character: she survived her husband several years, and died in the year 1800. Robert R. Livingston was a graduate of Columbia College, New-York, and after leaving this seminary he embraced the profession of the law. At an early age he was appointed Recorder of the city, and held that office until the year 1775, when warmly espousing the cause of his country, in opposition to British oppression and injustice, he was, at the same time with his father, ejected from office by the provincial governor. In the ever memorable congress which shook off the yoke of Britain Robert R. Livingston was an active and influential member, and was appointed one of the committee to draft the declaration of independence. He was next called on to attend, in the year 1777, the convention which met at Kingston, and was placed in the responsible situation of chairman of the committee to draw up a constitution for this state. For that part of it which creates a council of revision we are more particularly indebted to him; especially as the good effects of this provision, in guarding the constitution from precipitate measures and the violence of party zeal, has been seen on several occasions. In the same year he was appointed one of the council of safety, in whom were vested such powers for the preservation of the state as the distracted situation of the country imperiously demanded; and let it to his honour be recorded, that although surrounded frequently by those who were hostile to the liberties of his country, and at a time when civil war inflamed the

passions and resentments of parties, still was this extraordinary power never abused. The convention which formed the constitution, appointed Mr. Livingston the first chancellor of this state, an office of great dignity and responsibility, the duties of which he continued to discharge, with the greatest credit to himself, and advantage to his fellow citizens, until he was called upon, in 1801, to undertake the important station of minister plenipotentiary of the United States to the French government.

In the year 1780 he was appointed by congress secretary of state for foreign affairs, in which situation he remained until the peace of 1783; at the same time continuing to execute the duties of chancellor of the state of New-York. In the convention of this state in the year 1788, assembled for the purpose of taking into consideration the proposed constitution of the union, Chancellor Livingston was the representative of the city and county of New-York. On this important occasion his abilities were united with a Jay and a Hamilton, and it was principally owing to their combined talents and eloquence that this state adopted the constitution. At the inauguration of President Washington, the oath of office was administered by Chancellor Livingston, for whom Washington had ever a great esteem. In the year 1801 he went to France, and negotiated a treaty with the French government, in conjunction with Mr. Munroe. By this treaty the territory of Louisiana was transferred to the United States, securing to our western brethren the means of transporting their produce to the Atlantic; an object of so great importance as would have justified, as many had recommended, a resort to arms. This was, however, by Mr. Livingston's exertions, avoided; and as it was also stipulated that the sums due by the French government to our citizens should be deducted from the amount to be paid

for Louisiana, a large capital was thus restored to those who had long been soliciting payment in vain. During Mr. Livingston's residence in France he had an opportunity of seeing several of the most distinguished characters of Europe; particularly as the peace of Amiens induced many of them to visit Paris. Whilst he was ever anxious to promote the interests of his countrymen, and his house was always open for their reception, Mr. Livingston took every pains to support the dignity of his country in the eyes of the representatives of the different powers of Europe; and the respect in which he was held by the *corps diplomatique*, showed that his exertions were not in vain. Having travelled through a considerable part of France, and after visiting England, Holland and Italy, he returned to the United States in 1805, and continued to reside at his seat at Clermont, until the time of his death, which took place on the 25th February, 1813.

Chancellor Livingston possessed an active and vigorous mind, and an uncommon quickness of perception. He had early laid a solid foundation in literature; and the classics, which in youth he had studied with care, afforded him a source of pleasing recreation in his maturer years: gifted with such talents, and which were improved with so much care, it is not surprising that he excelled in the profession of the law; and his eloquence at the bar and in the senate was such as to rank him among the most celebrated American orators. In congress, and in the conventions of 1777 and 1788, opportunities were afforded for a display of his talents, and in all these public bodies he was greatly distinguished for his commanding eloquence, as well as ardent attachment to the cause of liberty. After the adoption of the federal constitution, and when the duties of the high court over which he presided had greatly increased, still did his unwearied appli-

cation allow him to devote a small portion of his time to experiments in agriculture and in the mechanic arts. Ever anxious to promote the welfare and maintain the independence of his country, his mind seemed always intent on the best means of effecting these objects. The agricultural knowledge which he had acquired by a series of experiments, and by an attentive perusal of the best European works on this highly interesting subject was not only laid before the *Society for the promotion of the Useful Arts*, of which he was many years president, but was cheerfully communicated to numerous correspondents as well as to those who visited him at his hospitable mansion. His mission to France, and visits to England, Holland, and Italy, enabled him to add much to his stock of agricultural information, and every circumstance, worthy of notice or practice, proper to be adopted here, was detailed in his letters to his friends at home.*

Convinced of the great importance of improving the breed of sheep, he had, previous to his leaving home, imported from Europe different species of that useful animal, without finding any which proved to be better than those already in the country: having, however, an opportunity of seeing a number of celebrated merino flocks, shortly after his arrival in France, he determined to enrich his country with those valuable animals, and early in the year 1802, sent a few of them to New-York. Some time after his return from Eu-

* Beside the many important communications published in the *Transactions of the Agricultural Society of the state of New-York*, and in the *Transactions of the Society for the promotion of the Useful Arts*, under which name the former institution was re-organized, Chancellor Livingston enriched the article "Agriculture," for the American edition of Dr. Brewster's *Encyclopædia* with much interesting matter. His addition to this article was the last of his literary labours.

rope he wrote a treatise on the Merinos, stating his own experience, as well as the best information he could obtain respecting them. This valuable *Essay* was presented to the society for the promotion of useful arts, and was, by direction of the legislature of New-York, printed, and extensively circulated.*

The mechanic arts had long engaged his attention, and opened a wide field for the exercise of his enterprising mind. His professional duties, however, so much occupied his time, that these, as well as agricultural experiments, could only be indulged as recreations; and whenever any thing occurred to him as an improvement it was readily suggested to those who had more leisure to pursue the inquiry. Our ingenious countrymen frequently applied to him for advice, and for his opinion on the utility of many of their inventions, and so well known was he for frankness and sincerity, as well as for knowledge in various branches of mechanics, that models were often exhibited to him previous to the application of the inventors for a patent. On these occasions his candour was always shown, as well in pointing out defects as in giving praise for what might be useful.

The practicability of propelling boats by steam, had long been with him a favourite idea. To encourage him to make an expensive and hazardous experiment, the legislature of this state granted him exclusive privileges for a limited period, and although embarrassed by the difficulty of obtaining suitable workmen, he still persevered, and built a boat on the Passaick river, which came to New-York. As her speed was not equal to what the law required, and unable

* The *Essay* of Chancellor Livingston on Merino Sheep was, soon after its publication in this country, reprinted in London, and is now well known throughout Europe.

from his other avocations to devote as much time as he thought would be necessary to this business, he was obliged to postpone further experiments until he should have more leisure to conduct them under his own inspection. Shortly after this period he went to France, where meeting with Mr. Fulton, a gentleman whose talents do honour to his country, and whose mind, on many subjects, was so congenial with his own, they soon became intimate, and determined, after mature reflection on the subject, to make another experiment on the Seine. For this purpose they built a boat and procured an engine, and the result convincing them still more of the probability of final success, they resolved to prosecute the attempt when they should again meet in America.

An engine having been ordered out, and Mr. Fulton having returned, enabled them to renew their experiments in the year 1807, when complete success rewarded their talents and enterprise. Had not these gentlemen persevered, an invention so honourable to our country might never have taken place, or have been reserved for distant ages; such however is the ascendancy of genius, particularly when improved by culture, that those things which to common minds appear impossible, serve only to call forth the talents of those on whom heaven has bestowed her choicest gifts.*

It is proper to mention in this place, that Chancellor Livingston is deservedly considered the founder, and great benefactor, of the American Academy of Arts, established in the city of New-York. The first idea of an institution

* For a more minute and interesting account of this important subject, the reader is referred to an Historical Account of Steam Boats, drawn up by Chancellor Livingston, and published in the American Medical and Philosophical Register, vol. ii. p. 256.

of this kind was communicated by him to his brother, E. Livingston, Esq. then mayor of this city. To the public spirited exertions of Chancellor Livingston, while minister at the court of France, the society is chiefly indebted for the valuable collection of statues, busts, &c. now in their possession, a catalogue of which was published in 1803.* He was chosen president of the academy in 1805, and was annually re-elected to that station, until his death, when the Hon. Dewitt Clinton was appointed his successor.†

In private life, Chancellor Livingston displayed virtues of the most exalted nature. He was early and constantly distinguished for his filial love, and blessed with a most amiable disposition: in him were united the kind brother, the tender husband, and the most affectionate of parents. His residence on his patrimonial estate was well known as the seat of elegant hospitality, and whilst enjoying every comfort and convenience that an ample fortune could supply, he had a heart that was ever disposed to assuage the sorrows and relieve the wants of others. The long time which he had passed in public life, and his residence abroad, had added greatly to the number of his acquaintances, many of whom, as well as other visitors, continually resorted to his seat at Clermont; and whilst they were highly gratified by his instructive conversation, were not less pleased with that politeness of manners for which Chancellor Livingston was so greatly distinguished. Temperance and exercise added to a constitu-

* See an account of the American Academy of Arts, in the Register, vol. iii. p. 526.

† We are gratified to learn, that the Board of Directors of the Academy are making arrangements for an annual exhibition of the collection belonging to the society, a collection, as far as we can ascertain, superior to any other of a similar kind in the United States. It is ardently hoped and believed that the powerful influence and talents of the present president of the Academy will do much toward advancing its interests.

tion naturally strong, enabled him to enjoy an uncommon share of good health, and until his last sickness, few men who had passed the grand climacteric retained a greater share of bodily as well as mental vigour. During the summer of 1812 he, however, had repeated attacks of sickness; and found temporary relief from the waters of Lebanon springs. In the autumn his disease was renewed with increased severity, and it was in vain he again resorted to the bath and to the pure mountain air, which he so much delighted in, and which he had formerly found beneficial. His glass, as he said himself, was nearly run, and the sad event too soon verified his prediction. In the month of November he became so much worse as not to be able to leave his house, and his family and friends saw, with the deepest regret, his rapid decline. From the time he became seriously ill until his decease, although frequently suffering under a distressing complaint, still no murmurs, no repinings at his situation, ever escaped him. On the contrary, every word and every action evinced the most perfect resignation to the divine will. To his family and relatives, he offered every argument that could tend to alleviate their distress; often would he express his grateful acknowledgments for the many blessings which Providence had bounteously bestowed on him; and when comparing his situation with those who were suffering, unfriended and unknown, while he was surrounded by affectionate relatives and kind friends, and able physicians, all anxious to render him service, his fervent thanks would be addressed to heaven, in a strain of piety that could only proceed from a heart of the nicest sensibility. Nor did his family and friends alone share his kindness; to every domestic who approached him, and some had grown gray in his service, he directed the most friendly and soothing language. Sensible that the period of his dissolu-

tion was fast approaching, he addressed his family in a manner becoming a man who was so soon to be separated from the dearest objects of his affection, and pointed out to them as the only refuge from all calamities, that Saviour on whose merits he alone relied for pardon and acceptance.

On a review of the life of Robert R. Livingston, whether we consider him in the character of a patriot, statesman, and orator, or view him in the elevated station of chancellor of the state; if we trace his steps in the paths of philosophy and science, or follow him to the shades of his beloved retreat, we find abundant reason for expressing our admiration of his talents and respect for his virtues; and a grateful country will not fail to rank him among those whose memory America delights to honour as her favourite sons, with Washington, Franklin, and a long list of others, who contributed to procure the independence, and by their talents to do credit to their native land.

II.

SKETCH of the MEDICAL TOPOGRAPHY of the country that is watered by the upper streams of the MOHAWK RIVER, and the adjacent streams of the ONEIDA LAKE, &c. in the state of New-York; in a letter from Mr. MATTHEW BROWN, jun. to DAVID HOSACK, M. D. of New-York.

SIR,

YOUR letter of September last was duly received. I sincerely lament the occasion which again called forth inquiries into the "nature and origin of the Yellow Fever," and the dangers you must have encountered in the inquiry. The advantages of those inquiries, if you can arrive at the truth,

are honourable to yourself, and incalculable to your city and to the world at large. My apology for not answering your letter immediately is, that, at the time of receiving it, I was much engaged in professional business, and some avocations in my affairs made it necessary for me to be absent, for a considerable time, last fall, and the present winter.

I should gladly throw in my mite to facilitate your research after the truth: such information as I am in possession of, and the experience I have had in the disorders of this country, shall be detailed to you with cheerfulness. Yet, if I was to hazard an opinion, a description of the symptoms and termination of the disorders of our country, will go but little towards the establishment of the "doctrine of the domestic origin of yellow fever."

I will in substance answer your queries, by giving you a sketch of the face and appearance of this country; an account of the disorders which generally appear in the season, with the method I have practised in the cure. It may not be improper to observe, that the unguarded, or designing, declarations of many physicians, either to fill the gaping multitude with wonder, or to swell their own fame, have given currency to strange reports, which have gained belief in proportion to the distance they have travelled; and those reports are very apt to be credited, if they contribute in the least to the establishment of a favourite doctrine. But the facts are what you want.

I have resided at this village (Rome) between ten and eleven years. It is situated at the head of batteaux navigation in the Mohawk River and Wood Creek, about 116 miles to the west of Albany, 100 from Schenectady, and about 40 above the Little Falls.

At the last mentioned place, there have been undoubtedly great changes in nature. The mountain, which extends

down to the river, on each side shows evident marks of the water having fallen over the strait in a different place from the present falls. The rock is excavated, in many places, nearly a mile below the present falls, from twenty to forty feet above the highest water. These excavations are of a nature not to be mistaken, as they are worn smooth, even, and circular, and capacious enough to contain many hogs-heads. If I was to hazard a conjecture, I should say, that I believed the country west of the Little Falls, from five to fifteen or twenty miles on each side of the Mohawk River, has once been a lake. I am confirmed in this opinion by the appearance of the hills, the quarries of limestone, composed of shells, &c.; and even the loose stones in the fields have the appearance of having been washed with water, and many of them are made of shells and other substances, which are petrified, and remain entire. The face of the country, for a considerable distance, is level, and the flat lands, particularly on the Mohawk River and Wood Creek, are made by the washing of the adjacent ground. We find trees, leaves, and other vegetable substances, from five to ten feet below the surface, and at a considerable distance from the channel of the streams. I know of many instances where those logs have been found several feet lower than the bed of the Mohawk, or Wood Creek.

We have but few ponds or swamps of stagnant water, if we except those made by the canal-company, on Wood Creek, the last and the summer before. The soil, for a considerable depth, is a rich compost, made from the annual decay of the timber, leaves of trees, and other vegetables.

About fourteen miles to the west is the Oneida Lake: the country around it is flat and swampy. Twenty miles north-west from the west end of the Oneida Lake is Lake Ontario. There are many swamps and marshes on this

lake, especially near the mouths of the creeks and rivers. It has been the opinion, that the country about the Oneida Lake is the most sickly of any part of the western country, except at the salt-springs in the county of Onondaga.

Our summers are unsteady as to the degree of heat. In the months of July and August, we have a few days of very hot weather, seldom over five or six, before a change, often to very cool, for a few days. Our changes are sudden and frequent. We have considerable rain, and long periods of cloudy, misty weather, after July, which has generally been the clearest month in the year.

The disorders of the country are such as physicians would say are natural to it, viz. intermittents, dysenteries, diarrhœas, and, some years, typhus fever, which often goes through a family and neighbourhood, when it once gets into it. These last vary in malignancy. The last year, [1803,] we have not had a single case of typhus. The year before they were very frequent. Intermittents have been very common, especially on the banks of the Mohawk River, and about the lakes. The symptoms of bilious remittent, or typhus fevers, do not vary from the descriptions given of them by many writers on this subject, which are too well known to you to need repetition. I have observed, that persons seized with typhus grow worse at periods, from seven to ten days, until about thirty days, and recover in the same order or periods.

As to the treatment of this fever, or dysentery, I cannot say I have ever been satisfied, either with my own, or other gentlemen's practice. Perhaps there is as great variety in the means prescribed for the cure of those two disorders in the country, as for yellow fever in town. From what I have seen, I am far from believing that bleeding, cathartics, and the antiphlogistic method of cure are without objections;

neither am I of opinion, that bark, wine, and opium, are infallible. I have generally cleared the first passages with neutral salts, jalap, and calomel, if the symptoms indicated an inflammatory diathesis, or if there was nausea or a load at the stomach. I am inclined to think, small doses of calomel, so as to affect the gums slightly, after a few days from the commencement of the disorder, and some wine and bark on the decline of the fever, have proved most successful. Very few have died of this fever, in this village, or its vicinity, for some years past. The gums and the glands of the neck, and other parts of the body, are often much affected, and even the jaw-bone quite carious; in several cases, one of which was a child, the patients died after many weeks; another recovered, after losing a considerable part of the jaw-bone, with three of the double teeth in it. Neither of these patients had taken calomel, but considerable quantities of bark and wine.

We have a fever in this country, which has got the name of *Lake Fever*. This is the fever which is said to be not unlike the yellow fever. It never attacks us till late in the summer, and the first months of autumn. A frost sufficient to stiffen the mud, or freeze water so that it can be perceived, puts an end to any new cases. It begins with slight chills, pains of the back, loins, and head. The symptoms do not vary from those of the ague and fever, except in the duration of the paroxysms, which have regularly an exacerbation once in twenty-four hours, and commonly in the latter part of the day. These fevers have no regular duration or change, but frequently end in regular fits of the ague and fever, and sometimes go off as the typhus. It often happens, that those who have been afflicted with this fever remain debilitated, and subject to slight returns, for two or three years, with œdematous swelling of the feet, hands, and face, a pale yellowness of the skin, flatulency of the

stomach, and, in a few instances, a vomiting of a yellow bile, once in every few weeks. I have never seen any thing which resembled the *black vomit*, as described in the yellow fever.

Very few die of this fever, if they have assistance in season. The bark with wine is a sovereign remedy, if the system is not too far exhausted, to receive the stimulus of those remedies. There is a strong languor, or leucophlegmatic appearance, in those people who have been severely attacked by this complaint; a kind of stupid insensibility, and want of animal warmth, under which they often labour for many months. Their gums sometimes become spongy; teeth loose and carious, with hæmorrhages from the gums, nose, and throat, long after the fever has subsided, and the appetite very voracious. To one that has been in the habit of observing those fevers, it is not difficult to discern the character of the intermittent through the whole of this fever; and I am fully convinced, it is no other than a high degree of this disorder, increased, perhaps, by the quantity of contagion, or the dirty and miserable situation of those people, as to houses, linen, and other things, which are so necessary to health.

At the Salt Springs, in the county of Onondaga, there have been great numbers of cases every autumn. I have seen hundreds who have taken this fever, but I cannot conceive it to be different from the other cases I have mentioned.

I am, Sir, &c.

MATTHEW BROWN, JUNR.

Rome, April 1, 1804.

loon; the upper ligature came away on the 21st day; and in about a month he returned to his work, being cautioned against undertaking such as required any great exertion or fatigue.

To estimate the effect of the operation in preserving the knee joint in the above case, it may be proper to notice the opinion of one or two surgeons of high reputation, on the danger of such an accident. "Wounds of the joints," says Mr. John Bell, "are so dangerous by their high inflammation that they may fairly enough be compared with wounds of the great cavities; inflammation, and pain, and violent fever, ensue; often the patient dies delirious on the first days; or if he survive these first dangers, it is to die by a great flow of matter, hectic fever, erosion of the cartilages, and spoiling of the bone." "Though there are in every book, cases of anchylosed joints, we cannot but remember that for one that has escaped by ankylosis, thousands have died."* Mr. S. Cooper† relates a case in which a lad who wounded his knee with a penknife, died in consequence of the violence of the inflammation and fever; and he subjoins in his "remarks," "I believe the severity of the constitutional symptoms is always greater when the inflammation of a joint arises from a wound, than when it is the consequence of a contusion or sprain."

I am aware that some wounds of joints have been far different in their event;‡ but I believe there is no criterion by

* Bell on Wounds, part iii. p. 12. † On the Joints, p. 28.

‡ Mr. Hey, who seems to think lightly of wounds of the joints, says, of a case rather more severe than mine, "the patient recovered so well that in the space of four weeks he became able to move about in the ward upon crutches." (Hey's Surgery, 2d ed. p. 360.) This is his most successful case; my patient walked without crutches in two weeks or less, and in four weeks returned to his work.

which we can distinguish at first sight what wounds will terminate thus favourably ; and until we are made acquainted with such criterion, we are warranted in reckoning as dangerous, all wounds in the joints not made with great caution, and not accompanied with sedulous endeavours to prevent inflammation.

It is therefore every way probable that the above operation was the means of preserving the joint at least. And this case is sufficient to prove, independently of theoretical calculations, that tying the main artery will prevent violent inflammation. The wound in the joint was of considerable extent, and air and blood had been freely admitted. It is not improbable that the bones or cartilages were struck. The hemorrhage doubtless lessened the immediate inflammation, but can scarcely be considered as preventive of the terrible consequences enumerated by Mr. Bell ; particularly as we know that all our endeavours to obviate inflammation, are frequently of no avail. It may be added that the wound was in the knee joint, the joint most likely to inflame on account of its great surface and complicated ligamentous structure, and which probably is the seat of disease, as often as all the other joints together. I trust it will not be deemed rash to recommend a similar operation in some cases in which inflammation and its consequences are to be dreaded, and for which we can scarcely be said to be in possession of any remedy.

1. In severe wounds of joints, (the knee joint at least,) we have the above case as a precedent.

2. In bad compound fractures such an operation may be serviceable. In these cases, when very violent, amputation is usually resorted to ; but tying the main artery of the limb will certainly lessen the inflammation, and if amputation should become necessary afterwards, no impediment will

have been occasioned by the previous operation. In these accidents indeed, (unless the soft parts be too greatly mangled,) I should be sanguine in expecting from it the preservation of the limb. For, if ordinary compound fractures can be cured by ordinary means, the powerful means proposed, by obviating high inflammation, would most probably reduce a very violent accident of this kind to the condition of the least violent.*

3. I ought to add, that I once heard a student in the London hospital propose tying the femoral artery as an experiment towards the cure of white swelling of the knee joint. As it is considered by surgeons of the present day, that these affections are less frequently caused by scrophula than by common inflammation, the proposition seems highly reasonable.

Tying the femoral, popliteal, or brachial arteries, are very simple operations, and may be easily performed by any one who is expert in anatomy and dissections. In elderly subjects it should be attempted with caution, lest the anastomosing branches should not enlarge sufficiently. But in the middle aged, more especially in young persons, there is not half the risk in the operation that there is in either of the above accidents or diseases.

The operation of tying the femoral artery for the cure of popliteal aneurism, was at first regarded as an experiment ;

*In vol. ii. of the Medical Facts and Observations, is the case of Thomas Oliver, aged 60, who suffered a compound fracture, "so that the lower part of the leg, with the foot, remained hanging only by a small portion of the gastrocnemius internus or soleus muscle." This limb was preserved, the bones united, and the wound healed completely in about two months. It is very clear that the anterior tibial and interosseal arteries (scarcely the posterior tibial) must have been lacerated in this case: and to this doubtless the prevention of violent inflammation and mortification is to be chiefly attributed.

but no conscientious surgeon could refuse it a trial, because the choice lay between that and amputation. Its merits were soon amply confirmed, and it would now be reckoned madness to amputate for aneurism. In the above proposal also, the choice may fairly enough be said to lie between amputation and tying a main artery. It would not have been made public with only one case in confirmation, if the opportunities of private practice had justified the expectation of being soon able to test it by more extensive experience.

I am Sir, with great consideration,

Yours, &c.

HENRY U. ONDERDONK.

DR. HOSACK.

IV.

ACCOUNT of the YELLOW FEVER which prevailed in VIRGINIA in the years 1737, 1741, and 1742, in a Letter to the late CADWALLADER COLDEN, Esq. of New-York, from the late JOHN MITCHELL, M. D. F. R. S. of Virginia.*

SIR,

In giving you an account of the pestilential distemper which has lately raged in Virginia, I shall not touch on any

* A series of highly interesting papers on the Yellow Fever which many years ago prevailed in Virginia, embracing the account written in 1744 by the late Dr. Mitchell of that state, with a reply of Dr. Colden to Dr. Mitchell, and a subsequent letter of Dr. Mitchell on the same subject, was placed in the hands of Dr. Hosack by the late Prof. Rush of Philadelphia, a short time previous to his death. As these papers were intended by Dr. Rush for publication in the Register, we have commenced in this number with the first in order, the letter of Dr. Mitchell to Dr. Colden. Some of our readers may recollect that extracts from this account formerly appeared in the Philadelphia Medical Museum; they however

thing relating to it, which you have had a full account of already in the same or like disease; that I might the better consult leisure for writing, and spare you the tedious trouble of reading. For which reason it would be needless here, to enter into a particular enumeration and description of all the symptoms which accompany this dire disease; they being no more, and no fewer, than what are commonly ascribed to, and may be observed in most malignant fevers; besides, they are already enumerated by Dr. Warren. The symptoms and three remarkable stages of our disease, are much the same as those observed by the said author in the malignant fever of Barbadoes; but I shall recount those symptoms, which appeared to me to be pathognomonic and inseparable from the disease, at least when rightly formed, as they seem not yet to be so well known; by which this fever will appear to be of the malignant kind, as it generally resembles those that are contagious, by its first appearing with a pain in the head and back and about the stomach, succeeded by grievous anxieties and oppression about the præcordia. And in general this distemper may be defined to be, a pestilential fever proceeding from a *contagious miasma sui generis*, which inflames the stomach and adjacent viscera, obstructs the biliary ducts, and dissolves the adipose humours; to which generally succeeds an effusion of a bilious or other yellow

will now be furnished with an entire copy. Few papers we believe will be read with more interest, particularly when it is known how extremely important Dr. Rush considered it in affording him new views of the nature of the same epidemic at the time it prevailed in Philadelphia in 1793.

On the character of Dr. Mitchell it is unnecessary particularly to remark. He was a distinguished Fellow of the Royal Society of London, and eminent as a physician and philosopher. With Chalmers and Lining, of South Carolina, and Alexander and Colden, of New-York, he has done much for the advancement of medical and physical science on this side of the Atlantic.

EDITORS.

humour upon the external or internal surface of the body, unless prevented by some means or other.

Those pathognomonic symptoms appeared to be the following six, of which the three last are more peculiar to it.

1. A very great and sudden debility, without any manifest cause.
2. A feverish anxiety, generally very grievous.
3. A short, quick and difficult orthopnœic respiration, after the fever is formed.
4. A contracted deep pulse; the artery feels tense, but the pulse is compressible, to which succeeds a depressed, or soft and low pulse, after the state of the disease, or after the yellow effusion appears.
5. A pain of the scrobiculus cordis, either much complained of, or to be felt on pressing that part; and more or less severe according to the severity of the disease.
6. A yellowness in the eyes or all over the body at the state of the disease; unless prevented by colliquative or critical discharges; to which may be added a violent and unusual kind of pain of the head, unless it is drowned, as it were, in the more grievous complaint about the præcordia.

The proximate causes and state of the body in this disease may be pretty evident, to those versed in the animal economy, from the following anatomical dissections.

February 14, 1741-2. At the request of Richard Chichester, Esq. in Virginia, and in the presence of him and several others, I opened the body of one of his slaves who died of this disease. This was the body of an elderly woman, past forty, who died the day before, on the fourth of the disease, with the following complaints: grievous and violent anxieties, occasioned, as she said, by the sickness of her stomach, severe pain of her head and back, returning by intervals, contracted hypochondres, and the scrobiculus cordis painful to the touch, short, quick and interrupted respiration, with deep sighs and heavy groans; a slight raving rather

than delirium, a black tongue, unquenchable thirst, tremors, very quick and depressed pulse, the eyes very yellow, a sudden and severe pain about the navel a few minutes before death.

After cutting the teguments of the abdomen, the fat of the body appeared very yellow, so as to be noticed by the bystanders, and was indeed as yellow as the eyes commonly are in a jaundice. Upon penetrating into the cavity of the abdomen and laying the teguments aside, I was surprised to see no such thing as an omentum; at first I imagined I had torn it off, or removed it to one side with the teguments; but in vain was it sought for in the whole body. There appeared a few things like the blood vessels of the cawl adhering to the place where it is generally connected to the stomach and colon; the traces of which connection might be discerned; but there were no more remains of its substance, than a little yellowish thin oily liquor floating up and down among the intestines and about the mesentery.

The liver appeared turgid and plump without any blemish on its outer convex surface; but on the concave surface, two thirds of it was of a deep black colour, round the gall-bladder seeming to be mortified or corrupted.

The gall-bladder appeared outwardly of a deep yellow, but within was full of a black ropy coagulated atra-bilis, which sort of substance likewise obstructed the porus biliaris and ductus choledochus. This atra-bilis was hardly fluid; but on opening the gall-bladder it retained its form and shape without being evacuated, being of the consistence of a thin extract, and withal glutinous and ropy like soap when boiling: this black matter seemed so much unlike bile, that I doubted if there was any bile in the gall: it more resembled bruised or mortified blood, evacuated from the mortified parts of the liver surrounding, although it would

stain a knife or probe thrust into it of a yellow colour, which, with its ropy consistence, seemed more peculiar to a bilious humour.

The duodenum was of a deep yellow colour as usual upon its outside; but where contiguous to the cystis fellea, had a mixture of a deep green or eruginous colour intermixed with its yellow; within, it contained a viscid bile, or rather a yellow mucus, closely adhering to its tunics, mixt with a little of the black bile, like that contained in the cystis. Its villous coat appeared to be lined with a thicker fur or slime than ordinary, which being scraped or peeled off, the other vascular and muscular coats of the gut appeared red and inflamed.

The stomach seemed manifestly inflamed; it had on its outer surface, towards its upper orifice, two large broad spots of a dark red colour, somewhat resembling the flushings in the cheeks, or a rose on the leg; it had nothing within but a little drink which had been just swallowed, and some of the black choler, resembling that in the gall-bladder, floating upon it, which was of a blacker colour here than in the gall-bladder itself; it looked ruddy within as if it had been inflamed there likewise; its villous coat appeared, like that of the duodenum, more fuzzy and slimy, as if it were swelled or distended, which was particularly remarked by all others who opened any bodies that died of this disease.

The lungs, instead of being collapsed, were rather inflated as in inspiration; they were all over full of black or livid spots, some as broad as the palm of the hand, others much smaller; on which spots, generally, were to be seen small vesicula, or blisters, like those of an erysipelas or gangrene, containing a yellowish humour.

I did not so curiously examine the other parts, as I saw no defect in any: and these seemed sufficient to show the

cause of her death, and account for the several symptoms of her disease: only the blood vessels in general seemed very empty of blood, even the vena cava and its branches; but the vena portæ was full and distended as usual; the blood seemed to be collected in the viscera; for upon cutting the lungs, or sound liver, or spleen, they bled freely. The brain was not opened, for want of conveniences at hand; but it did not seem to be affected in the disease, and was not affected in three more who were opened.

This woman was taken with a pain in her head and back, extending from the loins as far as the region of the liver, with great sickness at her stomach, succeeded by chilliness, burning fever, anxieties, &c. and was treated with a snake-root sweat in the time of her disease; but took a vomit at its first seizing her, which brought up much dark, bitter choler, without any relief. She was in perfect health before this distemper seized her all of a sudden, as she was at work.

The day before, I opened likewise a girl about twelve or thirteen years old, who had been dead about two or three days, and was preserved on purpose for me to open. She died on the sixth or seventh day of the same disease, with which the other and several in that family had died. In her, the distemper was left almost entirely to nature, except her losing about four or five ounces of blood, and the plentiful use of diluting teas which she had recourse to. A little before her death, she complained in the same manner with the other, of a most violent pain in her belly about the navel, succeeded by grievous and intolerable anxieties: they had no suspicion of a yellow fever at that time, and so did not notice her eyes.

There was little difference between the affection of the parts in her, and the one whose case has been related. The

fat of the body did not appear quite so yellow ; but the liver had a much greater and deeper mortification or blackness on it, the whole under concave surface of it was very black as far as to the very edges, which penetrated very deep into its substance about the gall-bladder, which was full of the same atra-bilious, glutinous, ropy humour as in the other. The omentum was entirely consumed or destroyed in this subject, in the same manner as in the other, whose case has been related ; and a little yellow oily matter floated up and down in her abdomen. The stomach and duodenum were affected much as in the preceding case, only there was little sign of any external inflammation on the stomach. The lungs were affected in the same manner, but not with so large or deep black spots.

In the spring of the year 1737, there were two more opened, who died of the same distemper, in whom the parts were affected in the same manner as has been related in the first case, particularly as to the destruction of the omentum, blackness of the concave surface of the liver, contents of the gall-bladder, inflammation of the stomach and spots on the lungs ; as he who made the dissection, and others who were present at it, particularly informed me. September, 1742, another was opened who had died of the same distemper, as the two persons above related ; although got from a contagion which was supposed to have come from a different place : in him the omentum was likewise entirely consumed and destroyed ; the stomach a little inflamed, but no blackness was discerned on the outer surface of the liver, and its inner substance was not looked into, although the cystis fellea and biliary ducts were full of the same black, glutinous, coagulated matter, as in those cases I have related.

The following account of the state of the blood which I have carefully observed in this disease, may likewise help

to illustrate its nature, and show the state of the body in it. The blood extracted by venesection is of a deep red or florid colour, appearing to be thin and fluxile, with no sily inflammation, crust, or skin whatever upon it when cold: the crassamentum is broad, shallow and floating, being easily divided by the fingers; the serum makes about two thirds of the whole blood, or more, when let at, or nigh the state of the disease; and about one half at the beginning: after the state or height, it seems by the pulse to be more; a large proportion for an acute continual fever. Even those who are bled after a received contagion before the fever is formed, have a thin dissolved florid blood, even in winter. This was the constant state of the blood in about thirty or forty whom I have known to have been bled, at all seasons of the year. But the arterial blood which I have had an opportunity of seeing was very different. Feb. 17, 1741-2, five or six ounces of blood were taken from the temporal artery of one labouring under this disease, on the fourth day, just as the yellowness began to appear in the eyes, attended with a stupor; this blood was not more florid than what the venous blood generally is in this distemper: when cold it had a purulent yellow skin or inflammatory crust on the top, exactly resembling the crust on the venous blood of pleuritics, but not very thick, although tough and not easily divided; the crassamentum was very cohesive, thick and blackish at bottom; the serum made not above a sixth or eighth part of the whole, which was of a deep yellow or saffron colour, and would tinge the finger or a linen rag dipped into it, of the same colour as if dipped in gall; deeper than is commonly to be seen on a rag dipped in the urine of persons in a jaundice. On this every one that saw this blood was convinced that the distemper was what is generally called the yellow fever in America.

Dr. Langrish says, we are not yet well informed of the state of the blood in malignant fevers; this perhaps may be some help to a more certain and general determination of that necessary point.

Qu. Whether this difference between the blood of the veins and arteries is not a confirmation, or rather an ocular demonstration of the ingenious Bellinian hypothesis, which supposes a viscid lentor to be joined with a more dissolved acrid blood in malignant fevers? It is true, there was no blood taken from the veins of this person, but there was from one labouring under the same disease, in the same house, on the same day of the disease, but a few days before, which was like what I have described the blood of the veins to be; and was always found to be by all that ever saw it in this distemper. If this is the case in other malignant fevers, what surer sign, or more powerful cause can there be of their malignity than that the arterial blood should be viscid, thick, and sily, whilst the blood in the veins is thin, dissolved, and fluxile; so contrary to all the laws of circulation. Whence colliquations and obstructions at one and the same time; irritations joined to viscidities! Spasms brought on inflammations. Hence a mortification of some, and total destruction of other internal organs in a few days time! I cannot pass over two other remarkable circumstances of this disease: I mean the total destruction of the omentum and yellowness of the body which seem so peculiar to it. As for the first, it appears from these dissections, and likewise from the whole course and symptoms of the disease, that there is an inflammation of the stomach, joined with spasmodic constrictions and convulsive motions of that and also other parts about the præcordia. These spasms hinder the flux of the bile throughout the ductus choledochus into the duodenum; (*vid.* Hoffman, de Inflamm. ventris,) which by the heat of the

adjacent inflamed parts, is thickened to that degree which we have described to be in the cystis and ducts; hence an obstruction of the liver as well as of the biliary ducts. This obstruction of the liver causes a slower efflux of the blood and dissolved adepts from the omentum through the venæ portarum; whence the blood is accumulated, stagnates, ferments and corrupts in the omentum: at the same time the inflammation and spasms of the stomach cause an obstruction and slower circulation of the accelerated blood through the gastric arteries; hence the blood will be propelled in greater quantities and augmented force through the other branches of the cœliac artery, but especially through the gastro-epiploic, which arise or proceed immediately from the gastric. Hence the blood is more forcibly impelled into the omentum whilst it is denied a passage through it, or exit out of it, by the veins: from whence, not to mention other concurring causes, as spasm and heat of adjacent inflamed parts, distortions, from anxieties, &c. arises a large, sudden, and total inflammation, strangulation of the circulation in that whole organ, which necessarily brings on mortification, putrefaction, and dissolution; especially in so tender and delicate a part, used to the slowest circulation, and the mildest, smoothest humours of the body, and through which a thin, hot, sharp blood is now propelled with an augmented force and celerity. Surely the inflammation and suppuration or mortification by a boil is brought about and breaks through the skin, a much thicker membrane than the fine subtile membrane of the omentum, in as short a time, in the analogous membrana adiposa. But another no less powerful cause concurs to this destruction of the omentum, the inflammation of the stomach spreads over it, in another manner, and from another cause, which is no less destructive to it. It is well known that the inflammation accompanying malignant fevers is of the erysipelatous kind. All the circumstances of this disease,

and the very looks of the inflammation of the stomach seem to confirm the same. But the nature of an erysipelatous inflammation is to spread from one place to another; and from hence this inflammation, when it is once fixed on the stomach, easily spreads over the contiguous omentum: and any one may easily imagine, what havoc the sharp and ulcerating blood of an erysipelas, must make on a tender and delicate omentum; being moreover so contrary to its natural humours; but perhaps some may imagine this cause not to be different from the other before mentioned. I need only hint, what dire and fatal effects, such a spreading pernicious affection must produce among the other adjacent or contiguous organs to the stomach, the liver, spleen, pancreas, pylorus, intestines, mesentery, and especially the diaphragm, but above all the upper orifice of the stomach; from an inflammation of which those who escape, as Forestus expresses it, may be reckoned the sons of Jove; hence those syncope, convulsions, hiccups, sudden, and unexpected deaths, and most other fatal symptoms of the disease. For if such an inflammation totally destroys a part in a few days, how dismal and fatal will its effects be, when it seizes the vital nerves and organs! But perhaps it may not be amiss to take notice of the symptoms which seem to be diagnostic signs of this destruction of the cawl, an accident which happens, or is taken notice of so seldom, that its signs seem to be unknown. These appeared to be more than ordinary anxieties, a fear and dread of any thing touching the region of the stomach, great and intolerable pain on pressing the scrobiculus cordis, no sign of respiration below the ribs, a palpitation of the abdominal muscles, contraction of hypocondrics and violent excruciating pain about the navel, forerunning death. In the next place I shall consider the cause of the yellowness which is so remarkable in this dis-

temper, as to have given it the name of the Yellow Fever. Although this is rather an accidental symptom than an essential mark of it, as the vulgar believe, yet it is far less to be deemed a critical discharge or appearance or salutary effort of nature to get rid of her oppression; it is rather the most threatening symptom which appears in the whole disease, as will be evident to those who consider its causes. These causes may be referred to the following affections of the body, of which sometimes one and sometimes all these seem to conspire to produce this dreadful appearance. By what has been related above we may see that the blood is dissolved in this distemper, and it is probable that the serous parts may be dissolved or attenuated by the disease as well as the red globules: these dissolved humours will be apt to enter the lymphatics, &c. vessels, designed to convey a more subtle aqueous, and consequently more pellucid fluid, than they; for we know that the lymph is much more clear and pale than even the serum of the blood, in time of health, but more especially in many inflammatory fevers. But this does not seem to be sufficient to account for that universal deep and intense yellowness, which is often to be discerned in the skin, but especially in the eyes of some people labouring under this disease; nor is it sufficient to account for the yellowness of the urine, which I have seen of as deep a yellow in this disease as in those that labour under jaundice. We see that the omentum is much dissolved, so as to be sometimes totally consumed, and it is very probable from the great and sudden prostration of the body without any manifest copious evacuations, that the other adipose humours are likewise dissolved in this disease, as contained in the analogous *membrana adiposa*. This dissolved adeps will not easily incorporate with a thin dissolved blood in such a precipitate circulation; but be left to stag-

nate in the extreme capillaries, wherever the circulation is slowest; besides, by the heat of the body in the fever, it will be turned more yellow, and by incorporating with the acrid salts of the blood, now disengaged from its other component parts, whose texture is broken or operated upon by the miasma, or effects of the disease, a bilious humour will be generated, not unlike true bile itself; as bile is nothing but a humour resulting from such a mixture, its oily parts being more particularly supplied by the omentum.

This seems to be the more particular cause of that yellowness which is so peculiar to this disease, and may particularly distinguish this symptom of it from the same appearances in other distempers. But when the liver is inflamed, as we see it is in a few days, or the spasms or inflammation of the stomach and duodenum or inspissation of the bile in the cystis, puts a stop to the efflux of the bile through the common duct, then no one will doubt, but that a true and genuine icterus is produced from the true bile, in the manner commonly explained. And indeed this symptom, when the yellowness is great and very deep, appears to proceed chiefly from this cause, as it first appears in the eyes, then in the urine, and goes off by a tintured lateritious urine, or bilious stools; in all which it resembles a true icterus from hepatic bile. It is often, likewise, attended with a singultus, a sign of an inflamed liver; at other times this yellowness comes on with a rigour, as Hippocrates likewise observed, (*de vict. an. lib. 4. §. 7.*) like a true abscess or translation of a heterogeneous matter from one part to another. Nor is it very probable that that deep yellowness of the blood, taken notice of above, is occasioned without some admixture of the hepatic or cystic bile with it. To this cause seems to be owing that icterus which if it does not appear before the seventh day, continues during the apyrexia, but proves dan-

gerous in the relapse, which is seldom attended with any yellowness with us.

It is of the greatest importance in the cure, to know the course and stages of this disease, and the different changes it undergoes from first to last; with the times when they may be expected. By an account of this we may satisfy an ingenious query of the learned Dr. Clifton in his Hippocrates, p. 260, to wit, 'Whether the observations concerning the course and periods of acute diseases, delivered by Hippocrates, hold true in places at a greater distance, such as the East and West Indies, America, &c.?' This is reckoned a disease as peculiar to our new world as any other, and consequently as fit to adjust this matter by; which, if once determined, may make those excellent observations as universal and extensive as they are useful. But I have not only observed this; but likewise other epidemic diseases, which owe their rise to a certain uniform cause, which seem to be the diseases chiefly pointed at by Hippocrates in his Prognostics, to have the same course and periods in Virginia as delivered by the father of physic.

This fever was exasperated on equal or unequal days, till the fourth, which was what is called the state of the disease in Virginia, in the winter and spring season, when the disorder has chiefly raged here: on this day the signs of the yellow effusion began to appear, either in the eyes, or by vomiting and purging; this day was the index of the seventh. All good changes or favourable symptoms now denoted recovery on the seventh, as any bad appearances on this day portended death on the sixth. If the exacerbations were on equal days, they generally died in the third paroxysm, or the sixth day; but if on unequal days, they recovered on the seventh. Relapses happen either on the eleventh or fourteenth, which were adjudged on the fourteenth or seven-

teenth respectively; and this without exception in any, except those in whom the natural course and tendency of the distemper was prevented by a preposterous method of cure, or sudden and extreme severity of the disease, and all the regular efforts of nature upset thereby.

This distemper is remarkably contagious, of which we had the better opportunity to be satisfied here in Virginia, where we live in separate and distant plantations, consisting of numbers of servants and slaves; any of whom, if the distemper once seized, there was little security for the rest, but removal. The distemper spread rather slower than I have observed the measles or small-pox to do here; but it spreads faster and rages more violently in the spring season, or from Christmas to Whitsuntide, than any other time of the year; which I have likewise observed of these other distempers in Virginia. But the vicissitudes of our seasons in Virginia, where the changes in the seasons are reckoned greater than in any other place whatever, or our care in preserving against it, seem to have put a stop to the contagion. But it is likely that in the West Indies where they have no such vicissitudes of seasons, which are generally observed to put a stop to a pestilential contagion in northern climes, they may hardly ever get rid of this distemper, (no more than the Turks in Asia and eastern nations do of the plague,) without a purification of the infected places, or separation of the sick. As this was the case, several prophylactics were sought for, when it got into large families; the common alexipharmic method with snake-root drams I knew to prove ineffectual.

The following seemed to be the only effectual prophylactic I ever knew tried, and which proved effectual in fifteen in one family, where none escaped without some preservative or another; and wherever it was duly complied

with, the good effects of it were very evident. I observed, that before the fever formed itself, the sure sign of a received infection, ready to display its tragical effects, was a sudden and unusual pain of the head, generally above one or both eyes, which in some remitted with short intervals, and caused a giddiness or vertigo, rather than sharp pain, attended with an unusual feebleness and languor of the body, and often a sickness at the stomach; these complaints, I observed, were little regarded till the fever seized them very often all of a sudden, a few hours afterwards. Upon the first complaint of this pain of the head, they had six or eight ounces of blood taken from the arm. Some fell into large sweats or plentiful breathings, soon after bleeding; by which their disorders went off: but those that did not sweat, and their complaints continued, took a vomit of ipecacuanha soon after bleeding, and the night after the vomit fell into the like sweats, by the plentiful use of tepid diluents and warm covering. After these applications the distemper never formed itself, as it ever did when these complaints were neglected; although many had a brisk acute fever after, or in the time of their administration, for the space of twelve or twenty-four hours, of the same nature with this fever when once formed; and all were less or more feverish in the time of their sweats, which, however, went off with them, and never returned.

In all those that were bled, even in these circumstances, the blood was thin, watery, and seemingly dissolved, and that in winter; a very uncommon thing at that time of year in Virginia. Some few were seized so suddenly as not to give room for this method of prevention; which, however, in most, proceeded rather from inadvertency and neglect of a slight sudden disorder, for want of knowledge of what it meant, than from want of warning.

But although I can say that I never knew this prophylactic method fail where it was rightly tried; yet we cannot always perhaps expect such good effects from it: still, even then it might be well worth while to put it into practice in these circumstances in all large families, towns, camps, or ships, in which this distemper has chiefly raged in America; for it has chiefly got among sea-faring people, who sail these seas, and has been twice brought to Virginia by his majesty's ships of war, from whence great loss is sustained, both in private commerce and the transaction of public affairs; which may make any account of it there more interesting, for if it were to prove ineffectual for preserving against it, yet it seems to be the best preparative for the body to undergo the disease. *Nam prima et præcipua in medicatione indicatio est, ut venenum susceptum ocyus citius e corpore pellatur. Jam vero miasma contagiosum primo omnium salivali sese immiscet latici, cum hoc ad ventriculum descendit et inde ad sanguinem transfertur. Hinc optimum utique consilium, ut venenum brevissima, qua subiit via, iterum exturbetur, simulatque cruditates primæ regionis, quæ deleteriam ejus virtutem mirifice intendunt per stomachic os everrantur. Sed opus est ut cito id fiat, simulac quis se infectum et languorem cum cardialgia sentit, &c.* Hoffman. *Medicinæ Syst.* vol. iv. p. 299, 300.

In this manner we come to use emetics safely in this disease, which are supposed to be necessary by many, and sometimes much relied on; as they do, indeed, when given time enough, help to prevent its worst symptoms, although they are little less than fatal in them; so that it may be truly said of them, what Celsus said of bleeding in an apoplexy, 'They either kill or cure.'

The bounds of this epistle will not allow me to be particular about several remarkable things which occur in this

disease ; especially in the cure of it, and in the consideration of the different *lædientia et juvantia* ; but I shall take notice of four things indicated in the cure, which, if duly complied with, afford much relief at first, and security at last, and which seem to be the chief, from which art seems to afford any considerable and signal assistance to nature.

The first and chief scope of the cure is to conquer the power of the disease, before it has produced any of its ill effects on the body, so as to render it more mild and tractable, than it usually is, when left to take its course ; else the event will be precarious. The worst of these effects, and most to be dreaded and avoided, as we may learn from the above dissections and course of the disease, proceed from an inflammation of the viscera. The principal way to prevent which, is generally to be by large evacuations at first ; so that the chief indication of curing this disease is the same as in other inflammatory fevers, viz. to keep off any local inflammation, or more universal obstruction of the capillaries by evacuations. Plentiful bleeding is a means commonly found most effectual to obtain this end in the benign inflammatory fevers ; but we cannot apply this most effectual remedy in this disease, because it evacuates only or chiefly the red globules of blood, which as we see by its state taken notice of above, are in too small a proportion already ; and bleeding further breaks the texture of the blood, which above all things is to be avoided in this disease : for after plentiful bleeding the pulse sinks, or at least is so low and feeble about the state of the disease as to prove of dangerous consequence ; which some instances I have known seem to confirm. So that the only way to make this necessary evacuation at first, is by such outlets as discharge the serous dissolved parts of the blood, and perhaps the miasma

of the disease within them, but leave the globular part, that strength of the body, whole and entire. For a discharge of these, by bleeding, causes that debility which cures other inflammatory fevers, but is one of the pathognomonic or most threatening symptoms of this; whereas a discharge of the dissolved serum, which distends and burdens the capillaries, the springs of action, restores that strength, which is ever to be desired and aimed at in the cure; not by cordials, &c. as is the common practice, but by evacuating that matter which thus oppresses the body and impairs its strength. But I would not be understood to discard bleeding entirely, which I have generally found serviceable in small quantities, and necessary to make way for other evacuations; but it cannot be depended on as a sufficient evacuation, to keep off the impending inflammation.

I. There are but two passages by which we can drain off the over-abounding serum or dissolved blood; to wit, the outer or inner surface of the body by means of sudorifics or cathartics; for the evacuation by urine is uncertain, and not always in our power. Sweating takes place in this as in most other pestilential diseases. By this manner of evacuating, we can drain off the greatest quantities of the dissolved humours, and make the largest evacuation that can be safely made, which seems to put a stop to the violence of the fever, and the danger of inflammation; but it must be observed, that the heat of the medicine, which procures this evacuation, often frustrates the good effects to be expected from it; for which reason the sweats ought to be increased to such a degree, that the largeness of the evacuation may cool the body more than the medicine which causes them heats it; to which plentiful dilutions ought to contribute. From a neglect of these necessary cautions, this method of sweating often contributes to bring on an in-

flammation, when antiphlogistics are really indicated. Two things ought to be observed and duly complied with, to render this method of cure safe and beneficial, and never detrimental or hazardous. 1. That there be no great dissolution of the blood, nor colliquation of the humours, when it is put in practice. 2. That the spasms and constrictions of the fibres, very remarkable, and easy to be discerned in this disease, and inflammation of the viscera, be not come on, when we give any heating sudorific medicine whatsoever. On this account it is, that this method of cure is not so successful in our cold winter and spring weather, when the humours are more sily, the fibres more rigid, and the body more dense and less perspirable, by which we do not sweat so freely and plentifully as is necessary; on which account I have known this method of practice brought into such disrepute as to be entirely laid aside; whilst at other times, in a milder distemper, it has been used successfully.

II. When the sudorific course has been neglected, or cannot be attempted with safety, on account of the sudden and violent symptoms, height of the fever, plethoric habit, or load of humours in the stomach and intestines, or other abdominal viscera, or has not been so successful as might be expected; then the only relief that I could ever find from any application, is from the mild relaxing eologogue apozems, taken frequently in such quantities as to keep up a constant diarrhœa, rather than speedy purgation, till there remains no further danger of an inflammation. This is often the first thing necessary to be done; for the great quantity of humours proceeding from the dissolution of the blood, which now possesses a greater space than when compacted into red globules, and the quantity of choler which is generally poured out of its ducts, joined with the other impurities of the first passages, which add much to its quantity and

ill effects: these, I say, cause such a turgescency of the morbid matter, as it is called, at the beginning, that nature is never able to rid herself of these two loads, unless they are partly drained off at first by vomiting or purging. This is the practice of both the ancients and moderns in like cases: for, in this case, sudorifics endanger an inflammation which can hardly be avoided in the use of them, wherever there is a plethora of the vessels, or any fullness of the body; for which reason, all those who abound with humours of another kind, or have a great proportion of fluids to their solid parts, stand in need of this timely evacuation: and this is the condition of most of your well fed Englishmen and other new-comers to America, who have not undergone the sudorific course of our summers

But it must be observed, that this evacuation is more necessary in this, than in most other fevers; even so as to become more beneficial than any other, as I have experienced, although it is generally neglected in other malignant fevers; for which reason, I shall sum up in a few words the principal reasons and observations, which show its usefulness. The abdominal viscera are the parts principally affected in this disease; but by this timely evacuation, their feculent corruptible contents are discharged before they corrupt and produce any ill effects; and their many emunctories and secerning vessels are set open, so as to allow a free discharge of their contents, and consequently a security to the parts themselves, during the course of the disease. By this evacuation likewise, great part of the offensive overabounding serum of the blood is discharged in time. The very minera of this disease proceeding from the putrid miasma, fermenting with the salivary, bilious, and other inquina humours of the body, is sometimes eradicated by timely emptying the abdominal viscera, on which it first fixes;

after the discharge of which, a gentle sweat does, as it were, nip it in the bud. Where the primæ viæ, but especially the stomach, are loaded with an offensive matter, or contracted and convulsed with the irritation of its stimulus, there is no procuring a laudable sweat, till that is removed; after which a necessary quantity of sweat breaks out of its own accord; these parts promoting it, when by an obsterging medicine, they are eased of the burden or stimulus which oppresses them. Hence I have often seen a more laudable and copious relieving sweat break out after such a deterging medicine given even in the height of this disease, than after a sudorific. Premature evacuations are generally dreaded in most fevers, especially such as proceed from a depravation of the inquiline humours of the body; but these contagious malignant fevers proceed from a venomous miasma received ab extra; which, like all other poisons, ought to be discharged as soon as possible, qua data porta. The morbid matter in other pestilentials may be most easily and conveniently discharged by sweats; but this fever requires discharges from those parts, which secern the most viscid humours from the blood, either to prevent or carry off the viscid humours which cause the yellow effusion, which we have shown to be bile, or of the nature of bile: and the rule for evacuations is, 'quæ educere oportet, quo maxime vergunt, eo ducito, per loca convenientia,' (Hippocr. Aph. 21. §. 1.) But bilious humours are only to be discharged by stools or urine, which are the passages by which nature rids herself of this disease, as we shall see below. (Galen. Com. in l. c.)

This is only the inverted method of the alexipharmic, in which we first sweat and afterwards purge; whereas in this method we make discharges of the redundant humours, which oppress the parts principally affected, after which sweat breaks out of its own accord, or is more easily pro-

cured by art. All concerned in the cure of this fever will find both these evacuations necessary; but which ought to precede the other, the skilful may be helped to determine from these considerations, joined to the following observations.

There are not wanting many other practical observations to support these reasons for timely purging in this disease. 1. This method I was directed to by nature herself. I observed that moderate, thin, bilious stools, raised by nature for a day or two, at the beginning, prevented in a great measure the yellowness at the height of the distemper, which then terminated by sweats. And endeavouring to imitate these efforts of nature, I obtained the same good effects, from the like stools procured by lenitives. This is the best guide and surest warrant for physicians to direct their practice by, whose business it is to imitate nature by art. 2. Several, treated in this manner, had no relapses, which all had here in Virginia in the winter and spring seasons, that were treated in any other manner. Does not the doctrine of Hippocrates confirm this practice? who tells us, that improper and untimely discharges in distempers, or those things that are left behind after a crisis occasion relapses. (*Epidem. l. 4. 1132.*) 3. Where the crisis is by sweat, relapses are dangerous and frequent; but where the bilious humours are carried off by stools or turbid ictitious urine, at any time in the disease, the relapse is but slight, and seldom or ever mortal. 4. In young persons under the age of puberty, of whom I have cured many, and in whom sweating cannot safely be attempted, this fever is as easily subdued, for the most part, and in the same manner, as their other fevers, which proceed from a load and corruption of the humours in *primis viis*, generally are; to wit, by absorbents, attemperants, and antispasmodics, min-

gled with clysters and lenitives, at any time in the disease ; by these, the fatal convulsions and hemorrhages in those and other tender people are prevented. 5. Sweating can only be safely attempted in the first hours of the disease, whilst the matter is fluxile ; which short lived opportunity is generally let slip, and sometimes does not offer ; after which, the only security against an inflammation of the viscera, is to be expected from lenitives given in the remissions, but not in the paroxysms of the fever. But it must be observed, that however these evacuations may prevent, yet neither one nor the other cures such inflammations till after concoctions ; and that purgatives are offensive on account of their stimulating, as sudorifics are for their heating quality ; for which reason they ought not to be given after any signs of an irritation of the vessels or spasms about the præcordia, severe anxieties, contractions of the hypochondres, or convulsive motions of the stomach : and none but the mildest diluting laxatives are ever proper, such as whey made with cremor tartari, or tamarinds, potions of manna and rhubarb, or solutive syrup of roses, a mixture of rhubarb, sal. nitr. in broth or gruel, or aperient relaxing apozems given in divided doses.

III. The next thing necessary to be considered in the cure, is the concoction (as it is called) of the morbid matter, whereby to render the remains of the morbid humours which have not been carried off by previous evacuations, but keep up the fever, a yellow effusion or inflammation of the viscera, fit to be separated and expelled in due time by proper evacuation. We need not dwell so long on this, although of great consequence in the cure, as it is to be effected by the same means as in other malignant fevers, where the same indications prevail : but the chief thing here is to establish a

true indication of cure for this disease.* On this account, it will be necessary to consider what are the indicantia and state of the body and proximate causes of this disease, which I shall do only in general; each particular symptom and the various cases which occur in practice would require a treatise by itself to discuss them thoroughly. The following seems to be the state and condition of the solids and fluids in this disease from whence the indications of cure ought to be taken. 1. The fluids are manifestly dissolved from the beginning by the miasma of the disease, and are much more so by the effects of the fever succeeding it. 2. The blood is much accelerated in its motions, when it is thin, dissolved, hot, and acrid: to this succeeds an effusion of a rancid, oily, adipose humour, or a more pernicious, heated, acrimonious bile about the height of the fever. *Hinc illæ lachrymæ!* 3. The solids are not rigid, and the body dense and imper-spirable, as in most other acute continual fevers; they are rather lax than weak; the dissolved blood is not able to keep their diastole; but they are apt to be drawn into spasms and convulsions, as weak fibres generally are, by the heated, accelerated acrimonious humours, especially in the more sensible membrane about the præcordia. 4. Hence a stagnation or inflammation in those membranes, especially the stomach and contiguous viscera: which as it proceeds from a thin, hot, acrid blood, or bilious humour, is of the erysipelatous kind. This seems analagous to pleuretic inflammation in other acute distempers, and in like manner is produced from the effects of this fever. 5. These bring on an universal spasm or systolic motion of all the nervous membranous parts; hence the arteries are contracted or nigh to a con-

* *Id probi distinguendum et probi noscendum, &c. Bagliv. de Febr. malign.*

tinued systole, as is felt by the pulse, which makes the dissolved blood, lymph, and bilious, oily humours stagnate in the extreme capillaries; whence mortification of the inflamed parts. From these causes likewise the blood will be drove out of the more rigid contractile parts; the muscles, &c. will be accumulated in greater quantities in the weaker, laxer glands, and in the more dilatable, spongy, viscera, the liver, spleen, pancreas, omentum, mesentery and lungs; whence, in the dead bodies, these parts were distended and gangrened, and the blood drove out of the other vessels into the *venæ portarum*, which proceed from, or tend to those softer viscera, where the circulation is slowest. But in all this the brain was not affected in the dead bodies, nor did it appear to be so in the disease, but by consent of the nerves and stomach: perhaps the rigid contractile *dura mater* and superior situation or distance from the stomach and *præcordia*, which are most affected, defends and preserves it. In these circumstances the following indications seem naturally to occur, besides the evacuations already taken notice of. 1. To prevent the dissolution of the blood by correcting the acrimonious salts of the peculiar miasma, heat, and biliary acrimony of the fluids, which seem to occasion it. 2. To relieve or guard against the spasms of the vessels. 3. To remedy the inflammation, and prevent the sphacelation of the viscera; especially those situated in the hypochondres. The particular remedies which I found most successful to answer these indications of cure, were the following: aqueous diluents are well known to be serviceable in all acute diseases; but besides their moistening, cooling, diluting quality, they are serviceable in a peculiar manner in this disease; they are generally earnestly desired and greedily swallowed, in large draughts, on account of the heat at the stomach, which draughts distend the stomach, that is often closed and con-

tracted ; this loosens the spasmodic constriction, as the anodyne quality or pleasant sensation which such draughts afford, procure a pause from the grievous restlessness ; but when the convulsed stomach acts on such a full load, it throws it off both upwards and downwards, by vomiting and purging, which evacuate that offensive humour, impacted on its tunics, or floating on its contents (as was observed in one of the dead bodies above,) that causes the worst of all the symptoms, the cardialgia and anxiety ; so that such large draughts of grateful aqueous liquors should not be denied the sick in this disease. For I have seen them procure as much speed, relief, and security, as could be expected from opiates in many sorts of pain : but some would give them cold, as they are coveted, which is dangerous in inflammation of the viscera, (Alexand. Trall. lib. 12. c. 3.) particularly in an erysipelas of the stomach. But diluters alone are not sufficient in this fever. It is further necessary to guard against the heat and acrimony of the humours by attemperating, incrassating, cooling remedies, such as decoct. hord. oryz. absorbents, &c. &c. but above all the acrimonious salts of the pestilential miasma, which dissolved the blood, are to be corrected, which as they proceed, in all probability, from putrid animal substances, are best corrected and destroyed by acids ;* which were found to be of service in this disease. But there is much in the choice of acids ; the harsh, mineral acids, irritate and fret the stomach : the mild, native, vegetable acids, well diluted, only agree with it. Acids rather prevent than cure the inflammation of the stomach. Where

* Hales Hemast. p. 325. Boerh. Chem. vol. ii. p. 314. &c.

the retchings to vomit are great they should be sparingly used. Acids should not be given alone, on account of the stomach, but with a mixture of some alkaline absorbent or warming alexipharmic; and in such a proportion as to make the mixture sub-acid and cooling; which mixtures agree with the stomach, and are more aperient. But acids are not to be depended on alone, as those who follow an empirical practice, and have a notion of their correcting and assuaging the heated bilious humours, pretend. They thicken the fluids, and stop and prevent those evacuations which seem necessary to carry off the fever, and expel the pestilential and yellow effusion. Nitrous medicines are to be used sparingly, unless mixed with camphor in small quantities.

But it is not these or any other method of cure commonly used, that will always prevent the mortification of the viscera, which ever seemed to be the fatal catastrophe of this disease; and was ever found to be in all the dead bodies that were looked into. For this reason it behoves every one who has a regard for the art, or welfare of mankind, to look out for new remedies, to prevent such a fatal issue, not only of this, but likewise of other pestilential diseases. When I first perceived that the event and tendency of this disease was to a mortification, I thought of the bark, the antiseptic virtue of which had been so well demonstrated and exposed to the world; and which I have known some instances of in Virginia. Had I at the same time known of its good effects in the small-pox, which I have been since informed of, from the *Edinburgh Medical Essays*, (as well as by Dr. John Fothergill in London, who advised me to the use of the bark in it, from the resemblance that this disease bears to the small-pox, and informed me of three cases of a disease like this in Minorca,) I should have been more bold in such a practice, which seems the only known way of snatching many

from the jaws of inevitable ruin. For the effects of the bark in gangrenes seemed to be to promote a laudable suppuration, which would avail but little in the parts affected in this disease. But we are informed (*Edinb. Med. Essays*, vol. 5th) that in the small-pox it promotes the maturation and concoction of the morbid matter, and abates the fever. This is what is wanted, when this disease tends to its fatal issue; and I can assert from my own observations of both, that both the symptoms, causes and effects seem to be much the same; at least not unlike in both these diseases, when they tend to their fatal issue, for want of this due concoction of the morbid matter, for which the bark has been successfully given in the small-pox. But does the good effects of the bark in that distemper proceed entirely from bringing a kindly suppuration into the pustules? Surely there is nothing more wanted in all these malignant pestilential distempers, such as both these are, than to preserve the tone of the fibres and crassis of the blood, both which seem to be destroyed in these diseases, especially this I treat of, when they tend to a gangrenous state; but nothing seems to be so effectual for this as the bark. It is the common practice to endeavour to remedy this deplorable case, or to satisfy this vital indication by heating cordials, as they are called; the same was the practice in much the like circumstances in gangrenes from internal causes, before the more efficacious use of the bark was known. But these are the most pernicious of all medicines, even in these circumstances of this disease, as I have seen by many instances. It is true, in other fevers these stimulating attenuating medicines become necessary towards their decline; when the mortal laxity of the fibres and grumosity of the fluids threaten a stagnation, even where they were little less than poisons at the beginning. Some such thing is wanting in these circumstances in malignant fe-

vers with dissolved humours, both to prevent this gangrenous disposition of the humours and sphacelation of the viscera, as well as to satisfy this vital indication which is most prevalent in them; but no medicine seems to answer; for these heating, stimulating cordials only further dissolve the broken texture of the blood, and instead of relieving sweats, promote colliquative evacuations, and occasion spasms and convulsions of the fibres instead of restoring or preserving their tone. But in these circumstances, in malignant fevers with dissolved blood, the bark seems to be the only promising remedy: but this, however, I should not have dwelt so long upon at present, had I not known the bark to be given in this distemper; to wit, about the height of the fever or state of the disease, when the fatal condition was just at hand, and that to the quantity of more than half an ounce of the powder in usual doses in a day's time; after which the person recovered, which would hardly have been the case in most other acute continued fevers, of the violence of this. I must own this is but a single instance, and not made with sufficient accuracy to determine so important a point; and I know the dangerous consequence of drawing general rules from particular observations, the bane of physic, and reproach of human reason: so that I cannot any further recommend or condemn this practice, but think it for many cogent reasons highly worthy the further consideration of the skilful; on which account I could not pass over this mention of it.

But whatever may be the effects of the bark in this disease, yet I know it to be often necessary and useful after it. There is a greater debility generally remains after the crisis, and the pulse is weaker and lower, than after any disease I ever saw; the solids seem to have lost their elasticity, and the blood its due crasis. This makes purging, to prevent a relapse, dangerous. At other times this fever, from an imper-

fect crisis, degenerates into a slow periodic fever, of long continuance. In these conditions, several lose their lives; but I have known others, who seemed to be in the like danger, to be saved by the bark: I have been informed by several judicious eye-witnesses, that this was the case of the soldiers and sailors in the late American expedition; great numbers of whom died in this lingering condition after the fever.

After the morbid humours are prepared or concocted, the next thing necessary to be considered, is the evacuation of them; in which three things are to be considered. 1. When any artificial evacuation is necessary to relieve or assist nature. 2. What kind of evacuations are most proper; and 3. The proper time for these evacuations.

As to the first, we must remember what we have above hinted; that about the time when the yellowness appears, or about the state of the disease, the pulse turns extremely weak and low, the debility is increased, and nature is unable to rid herself of any offensive burden, at a time when she stands most in need of it: this it is, that makes artificial evacuations necessary to assist the feeble efforts of languishing nature. It is true, the sole hopes of many, in these circumstances, are placed in cordials, to strengthen the body, as is the plausible pretence; and evacuations are then dreaded above all things, on account of the debility which it is feared they may increase. But the body is not to be strengthened, but by removing what weakens and oppresses it, which seems to be here the dissolved serous and bilious humours stagnating in the capillaries, or thrown on the viscera. And all these acute putrid fevers ever require some evacuation to bring them to a perfect crisis and solution, and that even by stools,* which must be promoted by art, where

* Una igitur alvi spontanea solutio atque perturbatio continuam febrem tuto ac perfecte judicat, &c. Fernel. *Feb. cur. Method.* c. 8.

nature does not do the business herself. On this account an ill-timed scrupulousness about the weakness of the body is often of bad consequence in these urging circumstances, for it is that which seems chiefly to make evacuations necessary, which nature ever attempts, after the humours are fit to be expelled, but is not able to accomplish, for the most part, in this disease. And I can affirm, that I have given a purge in this case, when the pulse has been so low, that it could hardly be felt, and the debility extreme; both one and the other being restored by it. Another thing which makes artificial evacuations the more necessary now, is the diffusion of a new morbid matter through the blood, which causes the icterus different from that which first brought on the fever, when nature is almost overcome by the conflict with the first. Evacuations are likewise the more requisite at last, if the necessary ones have been neglected at first.

The next thing to be considered, is the kind of evacuation to be promoted; the most beneficial I have always found to be procured by lenitive cholagogue purges. Sanctorius indeed tells us, that the matter of malignant fevers is discharged by insensible perspiration, which is the general aim of physicians to obtain in these kinds of fevers, in which they seldom consider that hardly any putrid continual fever comes to a perfect crisis by sweats alone.* But in this particular fever, whenever any yellowness, even in the eyes, appears, we are entirely frustrated in our expectation of any relief from diaphoretics, in order to carry it off. This icterus proceeds from a matter which seems to be too viscid to pass off through the narrow pores of the skin, and never goes off entirely and perfectly by any ways whatever, whether the contrivance of nature or art, that ever I could observe, but by a turbid

* Fernel, Feb. cur. Method. c. 8.

yellow lateritious urine or loose stools. The same observation is confirmed by Hippocrates, who adds to these salutary discharges, in an icterus coming on a fever, a plentiful bleeding at the nose. (*Epidem.* l. 1. § 3.) Nay, the fever itself, when little or no yellowness appears, is hardly to be carried off entirely without purging; for when this indication is neglected, when it first offers (all changes being generally sudden) the fever returns with exacerbations, like the putrid fever coming after an imperfect expulsion of the variolous matter in the small-pox; and as often proves mortal in this case, as in the other. It is true we do sometimes see the fever brought to an apyrexia without purging, when accompanied with little or no yellowness, but very seldom when it is; but even then the crisis is imperfect, and the distemper is subject to frequent and severe relapses; and often degenerates into a slow periodic and long continued fever which gradually wastes and consumes the body, when this necessary rule of practice is not rightly complied with in time.

And here I cannot pass over a further comparison of the method of curing this distemper and the small pox, in both which purging is found of equal benefit, much in the same circumstance. They both proceed from a subtile contagious miasma, which brings on the fever at first; towards the state or decline of which, another foreign, more viscid, ill conditioned, matter, gets into the blood; to wit, the variolous matter in one, or bilious humours in the other; which raises a new conflict from a different cause, which is hardly to be overcome but by evacuating this foreign matter by purging. The only danger of this evacuation in both diseases, which some complain of,* seems to proceed from the crude state of this matter, when it is either not

* Allen, *Synop. Medic.*

rightly prepared or duly determined to proper emunctories for an expulsion, like the febrile matter in other acute diseases. The proper time for this evacuation next to be considered, is the first signal remission of the fever, or abatement of the most threatening symptoms, after or about the state of the disease, which we have said, is generally on the fourth day here in Virginia; or when any signs of concoction appear in the urine, especially if it is yellow and turbid, or other signs which indicate purging in other acute distempers, are observed. (Vid. Helvet. Anim. Econ. p. 44) But if there is no exacerbation or paroxysm of the fever on this fourth day, which is generally a promising sign, and none of these symptoms appear which denote an inflammation, or threaten a gangrene of the bowels, then I have ordered a purge with signal relief and good effect in the height of the disease, before few or any of those signs appeared; thereby preventing the yellowness in a great measure, which was to be expected that or the next day; and obtaining a perfect and entire crisis, by copious sweats, ensuing after a few loose stools. It is true the necessary maxim, *cocta non cruda sunt medicanda*, ought to be had regard to in all diseases; but as little in this as in any other, on account of the necessity of evacuating the bilious humours, which can only be carried off this way. So that if a purge at this time could always be safely given, it would afford more relief than all the applications generally used; for the icterus and dangerous conflicts which it raises, are thereby in a great measure prevented, the good effect of which are so signal, especially if purging has not been used at first, that they are apparent to all who have ever seen the course and event of the disease without them. But in all acute diseases, there is great caution requisite in applying remedies of such signal efficacy; especially where the humours are dissolved,

the disease so severe and acute, and the debility so great as in this distemper. For as Hippocrates tells us in general. *Quod prodest, ob rectum usum prodest.* So where there is a critical dissolution of the blood, or collection of the humours, it is unsafe and prejudicial. At other times this fever is of a lypirian, which, as Hippocrates tells us, is not to be carried off, but by a cholera (*Coac. l. 4. aphor. 6.*) which I have seen verified more than once in this distemper. But the discharges in this, vomiting and purging, are rather of the colliquitive kind; which colliquitive discharge happens at other times; both which ought to be stopped or moderated; for which purposes I have found the same good effect from warm opiates, (*theriac. laud. liq. cum pulver. bozoard. absorbent. aq. alex. &c.*) as from purges at other times. So that there is no depending on any general method of cure in the different cases of this disease, however specious or successful at some times: but circumstances must be well considered and rightly judged of, by those who would avoid the imputation of *Pocteus Neapolitanus*. *Multi sunt morbi, in quibus, si medicus erret aliquando tamen parum, et quod vix notari possit, nocet: ubi vero obligeret magnus, fortis et periculosus morbus, tunc ipsius imperitia haud levia adfert incommoda.* *Paraph. in Hipp. de veter. Medicin.*

R E V I E W.

ART. I. THE LECTURES, corrected and improved, which have been delivered for a series of years in the College of New-Jersey, on the subjects of MORAL and POLITICAL PHILOSOPHY, by the Rev. SAMUEL STANHOPE SMITH, D. D. LL. D. &c. &c. New-York. Whiting & Watson. 8vo. 2 vols. Vol. 1st. pp. 324. Vol. 2d. pp. 386. 1812.

(Concluded from our last.)

HAVING now taken a survey of human nature, as composed of body and spirit, he enters into a more immediate analysis of its powers. These powers may be comprehended under the head of sensation, of sentiment, of imagination, of reasoning, of reflection, of volition, and of the moral principle. Sensation is either external or internal. External sensation is that perception which we have of objects without the mind, and their qualities, through the instrumentality of the corporeal organs of sense. Internal sensation, on the other hand, is the perception we have of the operations of our own minds by the inward powers of consciousness. Sensations also, are divided into those which are secondary, such as our perceptions of grandeur, beauty, proportion and harmony in objects. In treating on the nature of the external senses, and the manner in which they impart the knowledge of their objects to the mind, without attempting to explain the mode in which matter acts upon mind, which is probably one of the impenetrable arcana of nature, or adopting the ridiculous jargon of Hartley's vibrations, he assumes merely as a given truth, that

the notices of external things are conveyed to the mind through the instrumentality of the nervous system, a doctrine generally admitted, whether by a vibratory or longitudinal action in them, is of no importance, and upon this foundation he rears a theory of spectral visions and of dreaming, in the highest degree ingenious, and well worthy the perusal of all, who would cleanse their minds from the feculence of vulgar prejudices, and rid themselves from their idle fears of spectres and apparitions, the offspring of ignorance and timidity, nursed by superstition. I cannot give a more brief and intelligible statement of this theory, than in his own words.

“The nerves consisting of very vibratory* strings, or elastic filaments, easily excited into movement by an infinite variety of external impulses, or internal agitations, if their motions, vibrations, or other affections are the immediate causes of sensation; according to this theory, then, by whatever impulse any motion, vibration, or affection in the nervous system is produced, a correspondent sensation, or train of sensations or ideas in the mind, will naturally follow. When the body is in regular health, and the operations of the mind are in a natural and healthful train, the action of the nervous system being affected only by the regular and successive impressions made upon it by the objects of nature as they successively occur, will present to the mind just and true images of the scenes that surround it. But by various species of infirmity and disorder in the body, the nerves, sometimes in their

* Some respectable writers deny the vibratory motion of the nerves, ascribing to them rather a perpendicular movement through their whole length, agreeing, however, in the general principle that sensation is produced by some mode of nervous motion as its immediate cause. The reader who embraces that hypothesis may substitute his own peculiar opinion, or mode of expression, for the vibratory motions supposed in the text. The result of the reasoning will be the same:

entire system, and sometimes only in those divisions of them which are attached to particular organs of sense, may be subjected to very irregular motions or vibrations. If any vibrations be excited in them similar to those which would be created by the actual presence and impression of external objects of any form or quality, unreal images of the same qualities and forms will be raised in the mind. Examples in illustration or proof of this fact may be adduced from each of the senses. Light may seem to flash from the eye in consequence of a stroke. The ear may often be vexed by unreal sounds, and the eye by unsubstantial visions. The state of the nervous affections may be vitiated by intemperate indulgence, or by infirmity resulting from sedentary and melancholy habits. Superstitious fancies, or enthusiastic emotions, do often greatly disturb the regular action of the nervous system. Such elastic and vibratory strings may be subject to an infinite variety of irregular movements, sometimes in consequence of a disordered state of health, and sometimes arising from peculiarity of constitutional structure, which may present false, and often fantastic images to the mind. Sometimes a violent concussion on the head, or a lunatic affection of the brain, or the delirium of a fever, may produce such an irregular state of nervous action as to fill the imagination with wrong, imperfect and confused conceptions, which become the cause of all the disorders that mark the discourse and conduct of persons affected by these maladies. For, in madmen, and persons under the influence of a delirium, it is not so much the reasoning faculty that is impaired, as the sensitive powers which are disordered; and, presenting false images to the mind, become the occasions of its erroneous conclusions. The errors of reason, in such cases, it is true, frequently arise from the rapidity and confusion of images crowding upon the fancy, which deprive it of the power of fair leisurely comparison, and of forming its inductions from a complete possession and survey of its ideas.

“ But returning from this train of reflection, permit me to offer to your consideration a few examples of false impressions, appa-

rently arising from some of the causes which have been just suggested. You may not rarely meet with persons of enfeebled frames, or sedentary habits, who suddenly rising from continued reading, or intense thought, have, by the irregular and vacillating movement communicated by the effort to the brain and optic nerve, perceived repeated gleams of light flashing around them. But no cause, perhaps, produces a more anomalous oscitancy or vibration of the nervous system, or of some particular portions of it, than habits of intemperate indulgence. And I have not unfrequently become acquainted with men who had been addicted to such excesses, who were troubled with apprehensions of supernatural apparitions. A peculiar imbecility of constitution, however, created by study, retirement, or other causes, may be productive of similar effects. And sometimes these nervous anomalies are found in men who are otherwise of active and athletic constitutions. But where they possess enlightened minds and vigorous understandings, such visionary tendencies may be counteracted by their intellectual energies. Yet have we sometimes known the strongest understandings overcome by the vivacity of nervous impression, which, frequently, is scarcely inferior to the most lively ideas of sense. This may, especially, be the case in two very opposite conditions; either, when the body has fallen into a gloomy temperament, and the mind is weakened by fears, in which case it is oppressed by distressful apprehensions; or, on the other hand, when the nerves, the primary organs of sensation, are strained into an unnatural tension, and the whole system is exalted by an enthusiastic fervor to the pitch of delirious intoxication. When a man is exalted to such a degree of nervous excitement, and mental feeling, his visions are commonly pleasing, often rapturous, and sometimes fantastic; but generally rise above the control, or correction of the judgment. The younger Lord Lytton, in the vision which he believed he saw of his deceased mother's form, shortly before his own death, may be an example of the former; and the Baron Von Swedenburg, in his supposed visions, sometimes of angels, and sometimes of reptiles, may be an instance of the latter.

"It is of importance to remark, that the imagination which, according to this theory, is waked into action by nervous vibrations, and is furnished by their instrumentality with the materials of all the pictures, real or imaginary, which she is perpetually forming, has also a powerful reaction on the nervous system. According to its present tone, whether affected by superstitious dread, by melancholy terror, or enthusiastic rapture, or by any other strong and sudden impulse, it appears to have the power of recommunicating those vibratory motions to the nervous system which tend to giving complete form to those incipient images in the mind that correspond with its actual state of excitement; especially in persons whose fancies have been much disturbed in early life by the tales of nurses, and other follies of an injudicious education. The tenseness and force of the vibrations in the nerves attached to the respective organs of sense created by these vivid emotions of the mind and fancy, give intenseness to every sensible impression. Whence sounds will be augmented to the ear, and images be made more glaring to the eye. Take for an example, the effect of some unknown and frightful object in the dark, on a timid and superstitious mind. Its fears are alarmed; they seize upon the imagination; the indefinite outline of some terrible image is suggested to it, according to the accidental state of feeling at the moment. Immediately, the imagination, which is always prone to give shape to its images, bodies forth some direful form. As soon as the first alarm has awaked this picture-working faculty, it instantly creates before the mind an image, which is only the completion of the confused and indefinite form which began to be traced, in consequence of the original shock. And, by its reaction on the nerves, gives to the portrait of the fancy a sensible subsistence, and a name. The pictures created by an enthusiastic temperament are generally of a cheerful kind; those resulting from a melancholy superstition, are more gloomy; but both are explicable by the same, or a similar analysis of the operations of nature."*

* One or two examples of known facts may contribute to render our ideas on this subject more intelligible, and to justify the principles on which we have pro-

In like manner he gives a rational solution of the irregular and desultory phenomena of dreaming. From illustrating and establishing his theories of spectral visions and of dreaming, he proceeds to the consideration of the external senses,

ceeded in our illustration. I knew some years ago, a very worthy lady who, anxiously watching by the cradle of a sick infant, and momentarily expecting its death, felt, as she believed, just before it expired, a violent stroke across the back of both her arms. From a tincture of superstitious apprehension infused in her early education, and unacquainted with any natural cause of such a phenomenon, she construed it into a preternatural signal of the death of her child. It was probably a sudden and convulsive contraction of the muscles in that part of the system, occasioned by the solicitude of her mind, and the fatigue of watching, which, aided by imagination in a very interesting moment, produced a shock that had to her the feeling of a severe concussion. That a convulsive contraction should take place in those particular muscles, need not appear strange to those who know how irregular and uncertain is the whole train of nervous action, especially under the operation of some disorders of the body; and frequently, under the influence of strong affections and emotions of the mind.

"A young lady, who was peculiarly susceptible of the impressions of fear in the dark, or at the sight of any of the accompaniments of death, attended the funeral of one of her intimate companions, who had died of the small pox. On the following night she lodged in company with a female friend of great firmness of mind. Waking in the night some time after the moon had risen, and faintly enlightened her chamber, the first object that struck her view was a white robe hanging on the tall back of a chair, and a cap placed on the top. Her disturbed imagination instantly took the alarm; and in her agitation and terror, rousing her companion, she exclaimed violently that her deceased friend was standing before her. The lady, with great presence of mind, brought the articles of clothing, which had caused the alarm, and thus composed her fears. After she had become tranquil, and was able distinctly to recal her sensations, she declared that the perfect image of the deceased, just as she was dressed for her coffin, seemed to be before her sight. She contemplated it as long as her fears would permit her, before she exclaimed. She was sure that she recognized every feature of her friend, and even the pits of the small pox, of which she died, in her face. And she affirmed that before any tribunal she would have been willing to make oath to this fact.

"I have introduced this anecdote merely to illustrate the power of the imagination by its reaction on the nervous system, to complete the pictures that any sudden impulses of the senses, occasioned by surprise, or by superstitious, or enthusiastic feeling, have begun to form. It is not a solitary anecdote of the kind. But I have selected it, because I am more perfectly possessed of the circumstances, than of many others that are circulated through certain classes of society. Not are these classes always to be found among the most ignorant and credulous.

the smell, taste, touch, hearing, sight. He next treats of the internal senses, those which relate to the acts and sentiments of our own minds, those which relate to the arts, those which relate to morals; our secondary sensations are

“The story of Lord Lyttleton’s vision has been variously committed to tradition. There are some circumstances, however, in which all the narrations, that have been published, concur. His lordship was a man who had worn down to a very feeble state, a lively and elastic constitution, and impaired a brilliant wit, by voluptuous and intemperate excesses. A few days before his death he imagined that he saw before him the perfect resemblance of his deceased mother, who denounced to him that on such a day, and at a prescribed hour, he should die. Under a constrained vivacity, his mind, during the interval, was evidently much agitated. And on the predicted day, and at the prescribed time, he actually expired.

“This fact has been regarded by many persons, and those by no means of inferior understandings, as a decisive proof of the reality of apparitions from the spiritual world; and by others has been attempted to be resolved on a variety of different grounds. The principles suggested in the text may, perhaps, serve to explain it in conformity with the known laws of human nature, if the theory of nervous vibration be admitted to be true, without resorting to the solution of supernatural agents. The irregular and convulsive motions in the nervous system which frequently arise from long continued habits of intemperate indulgence, might be especially expected in a constitution so irritable and debilitated as that of Lord Lyttleton. If, either sleeping, or waking, or, in that indefinite interval between sleeping and waking, their disordered movements could present to the fancy, or excite in the visual nerves, the distinct image of a living person apparently resuscitated from the dead, which has been shown to be a possible case, the debilitated frame of his lordship, agitated as it must have often been, by the conscious apprehension of his approaching end, may naturally be supposed to have predisposed them to such a vision. Conscience, notwithstanding his assumed gayety, somewhat perturbed by the fears of death, and with a recollection of a pious mother, whose anxious admonitions had often endeavoured in vain to recal him from his vices, and to fix his thoughts on his future existence, might naturally retrace her features in this formidable vision. It is not improbable that the whole scene may have been a kind of waking dream. Or if it was wholly transacted in sleep, it might have been with such a forcible and vivid vibration or impulse of the nerves, concerned in the formation of such an image, as would give it the distinctness and vivacity of waking sensation. In the tumult of his spirits, and the fear-excited vibrations of his whole system, it is not strange that the image of that disappointed and reproaching parent, should be presented to him with a solemn and foreboding aspect. And it would be adding only one trait of terror to the scene already so well prepared to admit it, and one that it

divided into various classes, that of sublimity, of beauty, of harmony, of imitative pleasure, and of the ridiculous.

On the active principles of human nature, comprised under the heads of propensity, instinct, habit, sentiment,

perfectly conformable to our experience of the desultory images of dreaming, as well as what we have learned of similar visionary impressions—that a particular period should be denounced to him for his death, the symptoms, and presages of which, in all probability, he frequently felt in the tremors and palpitation of a breaking constitution. The principal difficulty in the minds of those who have only carelessly attended to this history, is to account for the exact correspondence of the event of his death to the time fixed by the prediction, if it had no other foundation than nervous impression. The imagined prediction itself was sufficient, in a debilitated and exhausted constitution, like that of Lord Lyttleton, to produce its own accomplishment. Seizing upon his fears, in spite of his reason and philosophy, for a life of dissipation and sensual excess, generally, very much weakens the powers both of the mind, and of the body, it would naturally throw his whole system into great commotion. These perturbed and tumultuous agitations would increase as the destined moment approached, till the strength of nature failing, may well be supposed to break at the point of extreme convulsion; that is, at the expected moment of death.

“To a case analogous in many respects to that of his lordship, there are many witnesses still living in the city of Philadelphia. The contrast in the issue of the latter, serves to confirm the solution which has just been given of the former. Mr. Edwards, a clergyman of the baptist persuasion in that city, of a tendency somewhat addicted to melancholy in his habit, but, otherwise, of a vigorous constitution, had, like Lord Lyttleton, a visual impression so clear and distinctly defined that he mistook it for a supernatural messenger from the spiritual world to announce to him that, at the end of a certain period, he should die. He was so persuaded of the reality of the vision and the verity of the prediction, that he took leave of his particular friends, and of his congregation, before the appointed day. On the evening of this day I saw his house filled with spectators and inquirers, awaiting with solicitude the catastrophe of this extraordinary affair. The tumults of his whole system, his difficult respiration, his quick and tremulous pulse, and its frequent intermissions, led many to announce, at various times, during that evening, to the surrounding spectators, that he was just expiring. And without doubt, if his frame had been as weak and delicate as his nervous system, he could not have survived the agitations, and, I may say, almost convulsions, into which he was thrown. And here would have been another prediction, and another supernatural appearance, as extraordinary as those of Lord Lyttleton. But his constitution triumphed; and he remained a monument to prove the force of nervous illusion, which, in this case, as doubtless it has proved in many others, appears to have given birth to an image as clear and definite as could have been

imagination, reason, affection or desire, passion and volition, he delivers the doctrines that have been taught with such resistless force of argument and masterly elucidation in the school of Reid and his illustrious coadjutors, interspersed

produced by the actual presence of such an object as was supposed to have created it. I would hardly have ventured to relate such an anecdote, if there were not ample testimony to its verity still existing. The good man was so ashamed of his delusion, and it so much lessened his credit with his spiritual flock, that he was obliged to leave the city, and the church where he had formerly been highly esteemed, and retire to a remote position in the country. Many anecdotes to confirm the reality of *nervous sensation*, if I may apply that phrase to designate those *sensible perceptions* which are sometimes raised in the mind, without the presence or aid of external objects, must have occurred to those who have had extensive opportunities of practically observing human nature. With several persons I have been acquainted, and those by no means of inferior understanding, who have been firmly persuaded of the existence of the spectres indicated by such *nervous* affections, and have, on some occasions, held conversations with them, real on their part, imaginary on the part of the supposed spectre. Such perhaps, in general, are the disciples of the Baron Von Swedenburg. But illusions of this nature are not confined to this class of men alone.

"Dr. Van Cleve, of Princeton, was lately applied to as a physician, on behalf of a man who had reduced himself by intemperance, to a state of very distressing nervous irregularity. He was continually disturbed by visions, sometimes of the most frightful, and sometimes of the most fantastic kind. He often heard strange voices; and would ask and answer questions, as if engaged in conversation with some of his visionary personages. His disorder, the doctor said, was evidently not of that species which is usually denominated mania, but appeared to be wholly the effect of a habit of nervous irregularity induced by previous intemperance. But the Baron Von Swedenburg, in his most visionary moments, was never surrounded by more extraordinary assemblages of strange sights.

"A very striking example of the power of nervous impression occurred a few years ago in the Rev. James Wilson, formerly assistant minister with Dr. Rodgers, in the first presbyterian church in New-York. He was a native of Scotland, and was a man highly esteemed for his good sense, and the soundness of his judgment; although not distinguished for a warm and popular eloquence. Being obliged for a time to relinquish the exercise of his ministry from a hemorrhage in his breast, he employed himself for several years in different occupations in Scotland and America, but chiefly in presiding over an academy in Alexandria, in the state of Virginia. The expectoration of blood having ceased for a considerable time, his conscience began to reproach him for indolence and self-indulgence in not renewing his ministerial functions. In this uneasy state of mind, a vision, as he thought, of a man of very dignified aspect, stood at the foot of his bed in

occasionally, with original hints and profound reflections of his own. In regard to the moral faculty, or as it has been denominated by Hutcheson and Shaftsbury, the moral sense, on which subject, we think that Dr. Paley in his

the morning, after he was perfectly awake, and surveying him steadily, for some moments, commanded him to resume his duties in the pulpit: but added that as considerable error had crept into the church, he should undertake to reform it according to the model of the primitive age. Mr. Wilson, conscious of his want of eloquent talents, and reforming zeal, reasoned with the supposed apparition, alleging his utter incompetency to the task imposed upon him. The dialogue ended in a repetition of the command, and assurance of ability and success. The good man, wholly unable to explain this clear and palpable vision, on any principles of nature or philosophy with which he was acquainted, was deeply distressed; yet, perfectly sensible of his insufficiency for such an undertaking, he neglected attempting to fulfil it. After an interval of two or three years, the vision was repeated, with nearly the same circumstances; except, that the aspect of the person who appeared to present himself, was more severe, and expressive of displeasure at his past delinquency. Mr. Wilson repeated his former reasonings on his want of health, and want of talents, with other topics. But the answer was still the same, a repetition of the injunction, and assurance of the necessary ability, and ultimate success. His distress was raised to the highest degree, in the conflict of his mind between what he thought a sensible demonstration of a supernatural requisition, and an invincible consciousness of his own incompetency, and his fear of doing an injury to true religion by his failure. After consulting several of his friends upon the subject, he at length addressed a letter to the author, stating all the circumstances which have just been detailed. He was answered with the general reasonings contained in this lecture to convince him that his vision was merely a consequence of nervous affection, resulting from bodily disorder. Three letters passed between Mr. Wilson and the author, reasoned on the part of Mr. Wilson with great calmness and good sense, admitting all the objections to such an apostolic undertaking as that to which he was urged, both from scripture and from his own peculiar deficiency of power and talents; but pleading the impulse of a sensation as clear and strong, and, to his mind, as real as he had ever felt. But it was replied, that there were other considerations combined with the whole system and harmony of nature, which ought to have greater authority with a rational mind than any single and individual impression of sense, which evidently violates its general order. The correspondence came to this issue at last, that, as he agreed with the church as she now exists in most of her doctrines, and especially in the moral precepts of religion, he should begin his course by inculcating only those principles in which all were agreed; and if he found the promise of his vision verified in his returning strength, and successful eloquence, he would then have sufficient encouragement to proceed farther. He

Moral Philosophy is peculiarly defective and objectionable, he advocates the opinion of those, who suppose it to be an internal sense distinct from all others, and has this property in common with the rest, that it imparts primary and ultimate ideas on the peculiar subject it was destined to enlighten, which cannot be acquired by any process of reasoning, nor by any other sense or power of our nature. Without elevating it into an infallible arbiter of right and wrong in human conduct, which would be to suppose it bestowed on us by the creator, in a state very unlike that in which all our other faculties and endowments are found, that of absolute perfection, he maintains that it is the only principle of human nature from which we can derive our conceptions of duty and obligation. In treating on this subject, he considers the nature of this faculty, the objects of its approbation or disapprobation, the extent of its influence, or how far it is a universal and independent test of the morality of actions, the end for which it appears to have been implanted in human nature, and then refutes some objections that have been made to considering it as a distinct power of the mind.

The nature of this faculty is to be learned from the nature of the ideas with which it furnishes the mind. They are all of that class which relates to duty and obligation, to moral rectitude and worth and their contraries. Its object are the intentions and dispositions of men, and their external actions chiefly as indicative of these inward principles. As to the extent of the information afforded by this faculty, it is not asserted that it is a universal criterion or

actually came to New-York with the intention to put this experiment into execution; but died in that city shortly after his landing. He published one discourse introductory to the design."

test of what is virtuous or vicious in human conduct; so that simply by inspection it can, without any aid from reason, pronounce upon any action a clear and certain judgment. It cannot pronounce a decision with certainty upon any action, unless it is placed fairly and fully before the mind, with a complete view of all the circumstances necessary to give a perfect shape to the action, and to form a sound judgment concerning it. The moral faculty, like reason, or like taste in the liberal arts, has its infancy, when it is yet feeble in its perceptions and liable to error in its decisions. And like them it requires strength by experience and reflection. But, surely, it would be as absurd to suppose, because the moral sense is liable to error, that, therefore, it was not intended to be any guide or censor of our actions, as it would be to conclude, because reason is not infallible in her conclusions, that she is no judge of truth. The end for which this faculty was implanted in our nature, was to become to us a light, guide and director in matters of duty. Reason can point out what is fit, what is safe, and what is useful, but to these ideas conscience adds the impression of duty, and gives them the authority and sanction of a law. It enjoins, it commands, it rewards, it punishes, it points to the justice and power of a supreme lawgiver and judge, of whose voice that of the judge in our own breasts is the faint, indeed, but commonly the sincere response.

From considering that moral law the creator hath imprinted on our nature, he proceeds to the subject of natural theology, which brings to view the most powerful sanction of that law, and renders it more clear by discovering the source from which it emanates. On this head, he enters into the proofs of the being of God which have usually been derived from two sources, the necessary nature of our ideas, and the structure of the universe. The one has been de-

nominated the scientific, the other the popular mode of proof, or, in the language of the schools, reasoning *a priori* and *a posteriori*. From the proofs of the existence of God he passes on to the review of his attributes, which are natural and moral. In the former are comprehended his spirituality, unity, eternity, omnipresence, power, and wisdom. Under the latter, his holiness, justice and goodness. When speaking of the goodness of the Supreme Being, he has some reflections which are so honourable to the moralist and divine, and are calculated to produce so happy an effect upon the mind, in reconciling us to the appointments and dispensations of heaven, that we cannot refrain from inserting them for the advantage of our readers.

“But why, it may be asked, should we be left to estimate our grade in the scale of being by the surplusage of happiness above pain? Or, why should pain exist at all in the system of a benevolent being? Satisfactorily to answer these, and a thousand other inquiries that might be instituted on this subject, would probably require a knowledge of the nature, and the infinite relations of the universe, which none but the Deity himself can possess. We can, therefore, expect only from revelation the information which we desire, as far as he is pleased to impart it. But while we are compelled to resort to the feeble lights of our own reason alone for a solution of the difficulties which spring out of the combinations of an infinite system, we must be contented with such probabilities only as it can yield us.* If, in the scale of existence, then, there

*“Rejoicing, however, that when we have explored reason to the utmost, we, as christians, still enjoy the superior illumination of the sacred scriptures, whence, if we cannot derive such lights as will satisfy every inquiry of an ambitious curiosity, we may, at least, draw competent satisfaction for a humble and rational piety; particularly with regard to this great question, why human nature exists in its present state of imperfection, requiring the corrections and discipline of the pains and sufferings which we see attached to it?”

be a place for such a being as man, with just such a measure of intellect, and sensibility, and with just such principles of action, continually requiring excitement and correction; and especially if it be conceived that he is placed in the present world, in a state of probation and discipline for a future period, and a higher condition of existence, a supposition which to philosophy is as probable as to religion it is certain, may not all the pains which enter into the moral culture of this life, be regarded as the discipline of a wise and gracious parent, and, therefore, as essential parts of a most benevolent system? Let us contemplate the relation which the pains necessarily incident to human nature, as it is now constituted, have to the improvement of its powers, and consequently to its happiness. The wants of man contribute to rouse that industry, and habitual exertion of all his faculties of body and of mind, on which their vigor and perfection principally depend. A paradise, where all his wants should be spontaneously supplied from the abundance of the soil, and all his senses gratified by its fragrance, its beauty and luxuriant sweets, would deteriorate the human character, and sink the noblest creature in the world into a lazy, torpid, and vicious animal. The happiness, no less than the improvement of our nature, lies chiefly in constant and useful employment, stimulated by these necessary wants. Enjoyment seldom yields pleasures equal to those which arise out of the activity requisite to procure it. The very efforts excited by pain and want, or by the apprehension of them, often produce a satisfaction, or diversion to the mind, which far overbalance their evils. Want whets ingenuity; danger and suffering call into operation the virtues of courage and fortitude, that communicate a character of grandeur and nobleness to the mind, which often raises it superior to the ills of life. And labour, however it might be the curse of man fallen from the perfection of a superior nature, is beyond a doubt the blessing of his present existence. Reflections of a similar nature might arise from an attentive consideration of every particular evil to which human life is exposed. And, in a moral point of view, how much more justly may we regard them as a

part of the benevolent discipline of our heavenly Father? They are correctors of the passions; they assist the habits of reflection; and often recall the mind from pursuits injurious to its virtue and its true interests.

“But, instead of examining in detail the various evils of life, and showing how the goodness of God is affected in permitting their existence, I shall select only a few; believing that if, in these, the benevolence of the divine administration can be justified even to our limited understanding, a hint may be suggested, or a clue given by which its vindication may be pursued in other cases. Take for examples, the circumstances attending the manner of our entrance into the world, and of our departure from it, which have been thought to involve serious objections against the benignity of the Creator. With regard to the former it may be fairly maintained, that the pains of bearing, nursing, and educating children, with the diseases and dangers of infancy, which seem, at first view, to be peculiar afflictions on the human race, will be found, on examining their connexions and all their relations, to be among the chief causes of the existence of society, and the felicity of social life. If children, like the young of other animals, were able to run as soon as born, and to feed themselves, with almost no dependence on the care of a parent, the powerful ties, and sweet endearments of parental affection, and of filial duty, would be unknown. The union and happiness of domestic society would be dissolved; and civil society, of which the domestic is the germ and the principal support, could not exist. Man would be a solitary and ferocious savage. The facility of rearing children, and their independence on a parent's care, would give the strongest encouragement to a vagrant and licentious concubinage, destructive of all the virtues, and of the dearest interests of human nature. Besides, the diseases of pregnancy, as human nature is now constituted, and the pains and dangers of child-birth, serve to endear the parents to each other, by the weakness, tenderness, and dependence of the mother; by the honour, generosity, and sympathy of the father; and a hundred fold to endear the child to the

parent. And it is an acknowledged principle in human nature, that the troubles and continual solitudes of nursing and education, together with the necessary diseases and hazards of infancy, greatly augment the strength of parental attachment, and lay the most firm and lasting foundations of the unions, subordinations, and harmonious affections, first of domestic, and afterwards of civil society. In these pains, then, which have been selected as specious objections against the benignity of the divine administration of the government of this world, we find some of the principal sources of human happiness.

“As to the manner of terminating the present state of existence by death, the necessity of it arises out of the structure of our nature. Death is the only way of giving to successive generations the means of existence. If this part of the plan of divine providence must be changed, the whole order of life must necessarily be changed with it. There could be no such creature as man in the scale of being. The institution of the sexes must be destroyed—the multiplication of the race must cease. The modes of subsistence on the products of the earth, which can sustain only a definite number, must be done away; and with these, as the whole state of human life is connected together by a close unbroken chain, must cease the operations of agriculture, the interchanges of commerce, and the entire system of the present occupations and pursuits of men. Man himself would be the first to object to such a new order of things. If death, then, be a necessary part of the human economy, and to man himself it would be undesirable to change it, if it must be accompanied with so many other changes, still more unfriendly to the wishes and the comfort of mankind, the only question that remains, is, in what manner it may be best accomplished so as to attain the most useful ends of its institution? Even if the whole human existence were to be terminated by death, this last act of our being, so justly formidable to our frailty and imperfection, is but a momentary pang, which has been far overpaid by the pleasures of life; but if, as religion assures us, and philosophy renders probable, this life is only a

period of discipline and probation for another state of being, and death is the avenue through which we must pass to it, certainly no method of approaching that decisive crisis could be imagined more beneficial than that which exists of attaining every good moral end connected with it—of making the descent to the grave easy to the virtuous—of impressing a salutary but not oppressive fear on all, as a useful restraint from vice—of preserving the mind, by its extreme uncertainty, always vigilant and attentive to the discharge of every duty, which is the best preparation for a tranquil exit from life—and finally, of inducing it to hold its present pleasures in a continual state of obedient resignation to the will of God, in the hope of exchanging them for such as are higher and more perfect.” p. 33—39. vol. 2d.

On the immortality of the human soul, which topic next engages the attention of our author, while he admits that the only certain evidence of its truth is to be derived from revelation, he gives an able and eloquent view of the arguments furnished by reason in its favour.

Having stated generally the principles of human nature, especially as related to our system of moral action, and exhibited, likewise, the most obvious evidences which reason presents to us of the being of God, and of the immortality of the soul, doctrines which give the greatest efficacy to the law of duty, he comes more particularly to the consideration of our duties themselves, the great end to which his preliminary discussions have prepared the way. The performance of duty from right principles and with right affections, is denominated virtue. In the speculations of philosophers on the subject of virtue, three very general and abstracted questions have been raised: what is its nature? what is its excellence? and what is its sanction? Of the nature of virtue different opinions, or perhaps different

modes of expressing the same opinion, have been adopted by various writers. Some maintain the principle, that virtue consists in acting agreeably to the will of God; of which sentiment Dr. Paley is a distinguished advocate. Others, with Dr. Campbell, insist, that it is only the wisest means of promoting our own happiness. Another class concur with Professor Hutcheson, in resolving virtue wholly into benevolence; making it consist in a prudent well-directed care to promote general good. And, finally, those who delight in a very abstracted and intellectual consideration of all subjects, define virtue agreeably to the opinion of Mr. Locke, to be acting according to the reason and nature of things. With regard to these opinions, he remarks, that there is a portion of truth in each of them; but as general definitions of virtue, they seem to be deficient in precision and accuracy. If that definition of virtue, which makes it consist in acting agreeably to the nature and reason of things, had been limited to our own nature, the mutual relation of its different principles to one another, and the relations of the whole to other sensible beings, he should be disposed to acquiesce in it. He adopts, therefore, the opinion of those ancient philosophers, who make virtue to consist in living according to nature; that is, according to the respective dignity and importance of the different principles which enter into the composition of our nature; according to the relations in which it is placed to other sensible beings within the sphere of its action; and, finally, according to the end for which it seems to have been formed.

And on this point, we owe it to truth, to candour, and the character of a reviewer, whose office we have assumed, to observe, that notwithstanding the ingenuity which the learned doctor has discovered in maintaining his opinion, and the learning and ability with which he has illustrated

and recommended it, we must be indulged in giving a decided preference to the opinion advocated by Dr. Paley, that virtue consists in acting conformably to the will of God, and we think we may add also to the definition, from a sense of duty to him. The opinion which makes virtue consist in acting agreeably to nature, cautiously guarded as it is by our author against every immoral tendency, is not only liable to the objection of a want of precision and perspicuity, but in its application to practice would be attended with infinite and inextricable difficulty and obscurity. Besides, we beg leave to remark, that the moral rectitude or pravity of actions depends entirely upon the motives which influence the mind to their performance. We have no idea of a truly virtuous action which is separated in the agent from the sense of duty to God, and in conformity to his will. We may with as much propriety predicate virtue of a piece of mechanism, all whose parts fulfil their appointed destinations, as of the man who performs an action, with due reference to all the constituent powers and faculties of his nature, detached from a consciousness of his obligations to fulfil a law, and of duty to a supreme lawgiver and judge. From an examination of the structure of our corporeal, moral and intellectual nature, we may, indeed, frequently trace intimations of the will of our Creator; but it will ever be found true, that the rectitude or turpitude of our conduct does not so much depend upon our acting with due regard to all the component principles of our constitution, according to any gradations of dignity and importance we may suppose them to occupy in our system, as from the sentiment of submission and obedience to God. We cannot help thinking, therefore, that the opinion which makes virtue to consist in acting conformably to the will of God, is more simple and precise as a rule of conduct, more favourable to good morals, more consistent with the system of

christian doctrine, as well as more consonant to the principles of a sound and just philosophy.

In regard to the remaining questions, in what does the excellence of virtue consist? and what are its sanctions? he very justly concludes the one to consist in the essential nature of the thing itself, and is, of consequence, intrinsic and eternal, and the others, to be religion, conscience, and general interest. He finishes this part of his subject by a brief view of the opinions of the epicureans, stoics, and peripatetics concerning the supreme good.

From this point he goes to the detail of our duties, on which he first descants, under those divisions made of them by the ancient philosophers, who classed them according to the principles from which they spring, under the heads of justice, prudence, temperance, and fortitude; and then, according to the division of christian writers, who arrange them in reference to the objects upon which they terminate, under the heads of the duties we owe to God, our fellow men, and ourselves. On each of these particulars, he delivers to his pupils many useful and profound lessons of practical wisdom, which should be carefully perused and diligently studied by every ingenuous youth who is desirous of being instructed in the laws of his duty, and of imbuing his mind with the principles of virtue.

The next subject which attracts the attention of our author, is that of economics, which treats of the reciprocal obligations and duties which arise out of the relations of husband and wife, parent and child, master and servant. Of these relations, the first in importance, as well as in its natural order, is that of husband and wife; and omitting, as unnecessary, all other questions, he limits himself to laying down a few principles relative to the nature, end, and duration of the contract by which they are united.

Marriage is the union of the sexes under the sanction of known and public laws. According to the precepts of our religion and the civil institutions of the christian world, it can take place only between one man and one woman. In consequence of the laws of Israel upon this subject and the customs of patriarchal antiquity, it has become a question among christian moralists, whether polygamy be contrary to the prescription of the law of nature, or only to the positive institutions of religion and the state? In answer to this question, he allows that of the law of Christ there can hardly exist any doubt, but maintains that the law of nature has not prescribed any definite rule upon the subject, and, therefore, where religion has not taken it out of the hands of the legislator, it is to be regarded chiefly as an affair of civil and political regulation. And yet he admits that matters have been so adjusted by the creator, that, allowing for the waste occasioned by the more hazardous occupations of men, there is nearly an equality of numbers between the sexes, and thus, as it were, by the immediate appointment of the great contriver, one woman is in the order of nature allotted to one man; and moreover, that monogamic institutions have been found wherever they have prevailed, to be followed by a more favourable influence than the polygamic, on the improvement and happiness of society. And could we desire stronger indication than these of the existence of a law of nature in this matter, or could the creator in the system of things have communicated to us more explicit intimations of his will: I leave it to the candour and philosophical discernment of our author himself to decide, whether by such an adjustment of the system of nature, as that the numbers of the sexes shall be equal, and the monogamic institution more beneficial in its influence upon society than the polygamic, the creator has not virtually declared to us

his will, from the beginning, which, in process of time, he revealed in his holy word. He shows us evidently by this arrangement that it was his intention that one woman should be allotted to one man, and that, in this respect, as in every other, his holy word is in perfect harmony with his works, and the law of nature with the sacred law of the gospel: we think, therefore, that the very data furnished by our author on this subject, overturn his conclusion; nor would the opinion we advocate tend to throw the smallest reproach upon the venerable patriarchs of antiquity, who indulged in the practice of polygamy because it was permitted by the laws of that dispensation under which they lived, and not prohibited by any civil or religious regulation of their country. The Creator may in this, as in the matter of divorce of which our Saviour speaks, have granted them indulgence on account of the hardness of their hearts. Besides, we know that the laws of nature, both in the physical and moral world, are enveloped often in an obscurity through which the feeble ken of man cannot penetrate. Now, if the patriarchs had never been made acquainted with the law on this point, although it might be in existence, they could not be considered as culpable for its violation, but as soon as it was formally promulged by Christ, the plea of ignorance was annulled, and its transgressors became liable to the penalty annexed to its infringement.

On the duration of the marriage contract, and of divorce, he observes, that the evident interests of society and humanity require that the union of husband and wife should be permanent during the life of both. The laws of marriage ought to be especially calculated to protect the weakness of the female sex, and to save from outrage the delicacy of their attachments. To this end, no principle, perhaps, is better adapted than the perpetuity of the marriage contract,

The only causes which can, in his opinion, consistently with virtue and good morals, dissolve this contract, and divorce the parties from each other, after it has been legally formed, are, infidelity to the marriage vow by the dereliction of chastity; obstinate and continued desertion; habitual intoxication; cruel and barbarous treatment on the part of the husband. Other causes have been assigned by different writers, which in his judgment do not afford sufficient ground of divorce, such as contrariety of temper, certain diseases supposed to be incurable, and mutual consent. On this subject we think our author has treated with more than his usual felicity of matter and manner. What he has said in the conclusion of this chapter, is so eloquently expressed and exquisitely touched, and is also calculated to produce so excellent an effect upon the minds of young persons, that we beg leave to transcribe it in his own words:

“Having spoken of the marriage contract, formed under the sanctions of the civil law, and considered it, as limited by the christian law, to take place between one person only of each sex, I shall now proceed to point out the crime of any clandestine and illegal unions which form the principal offence against this most important of the domestic relations. In proportion as loose and vagrant connexions between the sexes exist, and are justified, or connived at by public opinion, or are pursued by private vice, marriage is regarded as inconvenient, and falls into disuse; men become profligate and enervated; women are rendered unhappy and contemptible in proportion as they are dishonoured; and children, growing up without proper example and education, become ignorant and vicious; and, from all these causes, the public morals and the interests of the state suffer deep and irretrievable injury. There is no vice which men appear to be so willing to excuse to themselves; yet none, in the whole catalogue of crimes, is productive of greater evils to society. The licentious, because

they do not immediately suffer from the consequences of their seductions, are found to become unfeeling, cruel, and treacherous. Remorselessly they leave the victims of their pleasure to the most exquisite sufferings, to infamy and ruin. If these unfortunate women ever return to a sense of virtue, they are overwhelmed with anguish and shame: but if, as is too likely to be the case, a vicious appetite, or despair from the loss of character, tempt them to a life of prostitution, a fatal gulph is prepared for the public morals. But who can estimate the cruel injuries done to an unacknowledged and abandoned offspring, whom the guilty father had no right, for his own pleasure, to bring into existence, in order barbarously to give them up to want, disgrace, and vice! If violations of property are punished with imprisonment and death what pains can be too severe for violations of chastity which draw after them a train of so much more aggravated evils! It diminishes the guilt but little, that they are, most commonly, committed with the consent of the unhappy sufferer; it is the difference only between swindling and robbery.

“Women, whose frailty deserve compassion, have usually been the sole or the principal sufferers from this crime, by the natural dangers which grow out of the female constitution, by the severity of public opinion, and their own terrible sensations when left alone to all the consequences of their lost virtue. If the law would ever impose an effectual restraint upon an evil so pernicious to society, it must subject the aggressor sex, who are chiefly culpable, to some pains equivalent to those of which they become the occasion to their seduced and unhappy companions.

“Men who would reprobate in the strongest manner the arts of seduction employed on tender and inexperienced females in the wealthier and more polished circles of life, too often feel little compunction at corrupting the virtue, and destroying the happiness of women in the inferior classes of society. The pride of rank and fortune disqualifies them from sympathizing with the feelings of those who are far beneath them, as if their sensibilities were less exquisite, and the loss of character were to them a less

evil than to females of better condition. Their inferiority, indeed, renders them more liable to the unprincipled attempts of seduction; but the loss of virtue and of character is not less a source of extreme wretchedness, and often becomes the direful impulsion to abandoned prostitution, and, at length, to the perpetration of the deepest crimes. When women, in order to guard one virtue, the most difficult and important to be preserved, have collected the whole of female honour into a single point, that it may be the more strenuously defended, if they have been seduced to deliver up this fortress of their fame and character, they commonly abandon with it all their other virtues. And the seducer, who, by vows and protestations, has betrayed too credulous innocence, is chargeable, in the sight of heaven, with all the anguish and the guilt which follow. What, then, must be the degree of that anguish which follows the fruit of unlawful love, when woman, whose maternal feelings are so exquisite, who would survey with such pride the infant which she could honourably own, who would bend over it with such extacy, who would rush into the midst of flames to rescue it from danger, but, unlawfully become a mother, is often tempted to stifle all the feelings of nature, and, in a moment of distraction, to remove it forever from her sight, or herself to become its murderer, to hide her own disgrace! If the deep affliction of a deluded sufferer, if the loss of so many pleasures, and so many hopes, as accompany the innocence of a virtuous woman, if the vices, the shame and misery which follow the dereliction of virtue in the sex, can aggravate guilt, how aggravated must be the guilt of her seducer! And how base must be the heart of that man who, for a moment of thoughtless pleasure, will hazard the bringing of such evils upon one whom love should cherish, whom honour and generosity should protect!

“ There are men whose honour would shrink from the enormity of bringing disgrace and ruin on the innocence, and the confiding simplicity of a young woman in a decent station of life, who are little scrupulous at seducing married chastity. They encourage themselves by the idea that this crime is more secure from the dis-

grace of detection, and the soul dishonours which blast the fruits of unlawful love in an unmarried state. Yes, but it is never perfectly secure. And is it not then greatly aggravated by the dishonour and affliction of a whole family, and by the anguish of a husband robbed at once of his honour, and his principal treasure? No reward can purchase back the peace of mind of an injured husband, and father of a family. Death would often be a preferable evil. But, admitting that the crime could be preserved a perfect secret, is it, in any degree, less a crime on that account? The criminality of an action is not to be estimated by the consequences which may happen to an individual in a particular case, but by those which would flow from admitting the principle of such actions as a rule of general conduct. For no individual has a right to have peculiar rules of duty, or peculiar exemptions from general rules established in favour of his passions. What, then, would be the effect of this moral principle, that secrecy, while it protected, also justified an adulterous commerce? To what jealousies, suspicions, distrusts, infelicities, would it not give rise? No ties of *duty*, then, would prevent the rising of a new passion in the breast of a married woman. All domestic confidence, all the harmony of society would be destroyed.

“The seduction of virgin or of married chastity, considered in the lights in which they have been placed, will generally be condemned by the reason of all men; there are not a few, however, who justify, or excuse illegal connexions with those who have already lost their virtue, or are prepared to make a mercenary sale of it. Although this may appear, to careless observers, to be less culpable than the cases which have been just mentioned, it is, nevertheless, a crime highly pernicious to the public interest, and destructive of the moral habits of the people. And a great portion of the species it necessarily renders most worthless and most miserable. Society is deeply injured by a practice which effeminates and debauches the manners of its citizens, and especially which discourages marriage, and prevents the forming of regular and orderly families, which are the strength of a state, and the principal

source of its prosperity. And certainly no vice more entirely depraves the mind than this low commerce of gross sensuality. It blunts the fine and delicate perceptions of the moral sense ; and, perhaps, the greatest crimes which ever disgraced human nature have taken birth amidst the scenes of loose and profligate pleasure.

“ Having pointed out the criminality of any union of the sexes not authorized by the laws, under whatever form it may take place, I conclude with a brief answer to this important moral inquiry, how far does reason, and a just regard to chastity require that men should impose a restraint upon their conduct and their passions? The rule of the gospel is most conformable to the dictates of a sound reason, that the guards of virtue ought to be placed upon the heart and the thoughts. It is of the utmost importance to preserve the imagination and the fancy chaste ; it is otherwise in vain to hope to subject the manners to the laws of modesty and virtue—a loose wit, indelicate conversation, lascivious pictures, odes, scenes which tend to inflame the passions, the visions of a sensual fancy indulged, are culpable in the next degree to actual prostitution. The law of God requires that our thoughts shall not sin ; and the law of reason confirms its dictate.” p.135--141.

From considering the institution of marriage, he next ascertains the duties of parents to their children ; viz. present maintenance, education and provision for the future comfort of life ; and of children to their parents, of masters to servants, and of servants to masters. He speaks with so much eloquence and pathos on the subject of slavery, that we beg leave to transcribe a few paragraphs for the benefit of our countrymen :

“ Still more iniquitous is that barbarous policy which excites wars among the ignorant and savage tribes of Africa, with the view of purchasing for slaves the wretched captives. Indeed, the

whole of the African trade for slaves, in its principles, in its conduct, in the miseries it has introduced into an extensive region already too miserable; and in the cruel mode in which these unhappy wretches, after being torn from their country, are pinioned down in the holds of the vessels which convey them to the remotest parts of the earth, to be sold like brutes to perpetual bondage, is among the most atrocious inroads upon justice and humanity which have ever been practised in any age, or by any nation. The pretences which are made to justify it are as impudent as the traffick is inhuman—that a civilized people have a right to compel such ignorant savages to labour for their convenience and pleasure*—that a people possessing the knowledge of the true religion, may lawfully seize such gross and stupid idolaters, and transport them to a country where they may be better instructed;† when, God knows, even this hypocritical pretence never entered into the views either of the slave-merchant or the purchaser. But a more plausible palliative for the practice is the idea that many of these unhappy men were slaves in their native country; and that all must have been more miserable at home, half famished amidst their burning and barren sands, and subjected to a dark and bloody despotism, than they can be in a mild and plentiful region, among a people of polished manners. This is making the prejudices of our self-love the judge of their happiness, while at the same time, our own interest is the advocate. There is no country, however severe the climate, and however barren the soil, from which a native is not unhappy to be exiled. The ideas, the habits, the pleasures of men, are all inseparably blended with the

* Such were the imperfect ideas of morality which prevailed among the most enlightened nations of antiquity, that Aristotle maintained that *a civilized people has a natural right to make war upon barbarians*, and, consequently, to reduce them to slavery."

† This was a principle of the Romish Church in the grossest ages of her superstition; and on the pretence of this detestable principle, the Spaniards exterminated, or reduced to the most abject condition of servitude, the miserable natives of Mexico and Peru."

scenes, with the society, with all the objects which have been familiarized to them in the country which gave them birth. A Laplander prefers his snows and rocks to the most cultivated landscapes of France or England. An American savage perceives more delight in his solitary wilds, and even in the ashes of his wigwam, than he would in the most splendid apartments of a palace. Men deceive themselves continually by false pretences in order to justify the slavery which is convenient for them." p. 166
—168.

And in another part of his argument on this point he says,

"The cruel and mercenary policy of those commercial nations in Europe who planted colonies in the new world, gave birth to that trade in African slaves, which, on the score of its injustice and inhumanity, merits the strongest reprobation. Hence the origin of that extensive system of slavery which exists in several of the United States. But here our inquiries must receive a new direction. Is that slavery which was unjust in its origin, equally unjust in its continuance? All men condemn the barbarity of dragging the simple Africans from their native country. But America is the country of their descendants, and it would now be equally cruel to tear them from the soil in which they have grown up, and to send them back to Africa.* Servitude is undoubtedly a hard lot to the sensibilities of freemen; but the habits and ideas of these people being accommodated to it from their infancy, it does not press with the same severity upon their feelings. And hard as their lot appears to be, it cannot be denied to be preferable in every thing, except the sense of liberty, to what it would have been, born of the same parents in the original country of their

*"And their general and indiscriminate emancipation, as we shall show in the progress of the lecture, would be attended with many and almost insuperable difficulties."

race. But that precious sense of liberty renders tolerable to the savage poverty and wretchedness, the most barren sands, and the most howling wilderness. To confer on our American slaves, therefore, a privilege so dear to human nature; and otherwise, as far as possible, to ameliorate their condition, are certainly objects worthy a humane legislation. But our generous feelings may sometimes rush too precipitately to their end, as well as worse passions. And, in accomplishing this benevolent work, if it can be accomplished at all, in those states into the constitution and manners of which slavery is most deeply incorporated, great precaution must be used not to render their emancipation a worse evil than their servitude. But, in the first place, private justice on the one hand, and, on the other, that natural selfishness which infallibly regulates the councils and decisions of the great bodies and communities of mankind,* will oppose insuperable difficulties to its execution. The citizens of those states hold a property in slaves to a very large amount, acquired under the sanction of the laws. The laws, therefore, could not equitably compel them to make a sacrifice of so great value, to the convenience and comfort of any class of men. And neither justice nor humanity requires that the master, who has become the innocent possessor of that property, should impoverish himself for the benefit of his slave. On the ground of compassion for this degraded race, I do not know that the present holders are exclusively called upon to suffer the loss which must be incurred by a general emancipation. One mode, indeed, has been suggested, in which it is conceived that the demands of justice on the part of the master, may be reconciled with the wishes of benevolence with regard to the slave; and that is, by making an equitable estimate of the value of each slave, and of the value of his labour for a year, in consequence of which, the

*“ Individuals may frequently be found who are capable of rising above every selfish consideration. This is seldom the case of men acting together in a mass. Therefore we so often see the hardest and most cruel things done by such bodies without any compunction.”

state might bind these slaves to their present masters, as in other cases of bound servants, for a term of years, to be calculated from the preceding estimates; after which they would naturally pass to the enjoyment of liberty. To this might be added a law declaring all who should be born in a servile condition after the passing of that act, free after a certain age; only allowing sufficient time by their labour to recompense their masters for the expense of their maintenance through childhood. All that could be said of such a law would be, that it would be less unjust than one proclaiming an immediate and universal emancipation. What free people would allow their legislators to dispose, in the same manner, of any other portion of their property? But if it were free from every objection on that head, great and numerous difficulties would oppose themselves to its execution: difficulties which will not readily suggest themselves, perhaps can hardly be conceived by men who have not, at some time, been familiar with the institutions of slavery, and witnessed their effects on the habits, ideas, and whole state of society. One difficulty only I will mention, which a prudent policy, always attentive to the public safety and tranquillity, will naturally oppose to such a general manumission as is here contemplated. No event can be more dangerous to a community than the sudden introduction into it of vast multitudes of persons, free in their condition, but without property, and possessing only the habits and vices of slavery. Theft, plunder, and violence, would become common modes of supplying their wants among a people who had been used to labour only through compulsion, and whose servile principles would take off the shame of the basest actions. Delivered from their former restraints, they would become idle and profligate. Few of them willing to labour, and fewer finding regular and constant employment, or receiving wages sufficient to support them and their children;* they would often seek their provision by plunder, and

*"This would necessarily be the case, as long as slavery still subsisted; the free would seldom be employed while the master could be served by his slaves."

often by corrupting the fidelity of the slaves. In the natural progress of events, therefore, we should soon see property every where invaded, public safety disturbed, and even domestic peace and security constantly endangered." p. 169—173.

He concludes the subject with the following solemn admonition to the holders of slaves in our country :

"There is another view in which good policy requires that those states, in which the number of slaves greatly exceeds the free population, should adopt measures to diminish that disproportioned excrescence so dangerous to the political body. The time must come when these slaves will feel their force; and there will not be wanting among them men of a daring and enterprising genius to rouse it into action, to the great hazard of the public safety. Every revolt, and even every appearance of an insurgent and seditious spirit among the slaves, must subject them to new severities; and severity will multiply revolts. Slavery is preparing at some future period, much individual misery, and frequent and dangerous convulsions for the republic. It is a volcano which sleeps for a time only to burst at last upon the unsuspecting tranquillity of the country with a more terrible destruction.*

"O masters! treat your slaves, while slavery is suffered to exist, with all the mildness of which the necessary state of servitude admits; attach them to you by love; imbue their minds in earliest youth with the principles of good morals; admit freely to instruct them those teachers of religion, of whatever denomination, who will take pains to adopt religious ideas to their measure of understanding, and impress them on their hearts. The more of religious principle and feeling can be introduced among them, the greater security will you have for your own safety, and the safety of the republic." p. 178—179.

* The servile war at Rome was one of the most dangerous which ever agitated that republic; and we have lately seen with horror the convulsions of St. Domingo.

After taking a survey of the constituent principles of human nature, of the general heads of morals, of natural theology, and œconomics, he arrives at the last grand division of his work, which he denominates with others, his political philosophy or the philosophy of legislation. Political philosophy is naturally divided into three parts, consisting, first, of the rules which regulate the conduct of men toward one another in a state of society, and the means of enforcing those rules.

Secondly, the principles which give the form to the society itself and which direct its operations. And lastly, the rules which should govern the conduct of independent societies, or states towards one another. The first compose the science of jurisprudence, the second, that of politics, and the third, that of public law or the law of nature and nations.

Jurisprudence consists of two parts, of which the first ascertains and defines the rights of men; the second relates to the legal and authorized means of defending those rights. Rights are divided in different ways, according to their degree, their objects, or their sources. In the first view they are perfect or imperfect, alienable or unalienable; in the second, they are personal or real, and in the third, natural or adventitious. We have already extended our review of this work to such a length, that it is indispensably necessary that we pass more rapidly over the remainder. The second part of jurisprudence relates to the means of defending those rights which nature or the laws of society have bestowed on the citizen. They consist in preventing, in repelling, or in repairing wrongs. Of preventing crimes he speaks thus:

“For promoting the tranquillity, order, and happiness of society, no provision can be more effectual than imparting the means of

instruction to every class of the people, particularly with regard to their moral, and social duties, and the method of transacting all their ordinary affairs with promptness and intelligence. That degree of knowledge which, in a free country, may be imparted, by a prudent legislation, to the poorest orders of the citizens, contributes to exalt the moral feeling of the public, and heightens the love of order, and abhorrence of crimes. And by an honourable provision for cultivating the higher branches of science, there will always be prepared a most useful class capable of directing with wisdom and prudence the operations of government. And although they should never be called to bear an immediate part in the active labours of legislation, or the administration of the laws, they will serve as so many fountains of light distributed through society, to shed the irradiations of moral and political truth among the people, and with them, the love of virtue and of order. The rays, it is true, may often strike feebly upon dull and uninstructed minds, yet will they diffuse a general twilight, which is infinitely more friendly to public virtue, and social happiness, than the gross manners, and rude and untamed passions which generally accompany national ignorance, and the total destitution of science.

“Another, and important mean, for the prevention of crimes in a community, consists in the protection and encouragement given to religion. Religious knowledge tends to civilize the mind, and religious fear often holds a powerful controul over the violent passions of the most vicious of mankind. To the influence of religion have all wise legislators in antiquity resorted, to lay the foundations of society most securely, and to promote its civilization. The rites with which the people continually approached its altars, impressed the public mind with a salutary reverence for those divine powers which were believed to preside over the world, and were the avengers of crimes. The christian religion adds principle to ceremony, and instruction to the rites of devotion, and seizes on the soul by the double power of religious illumination and religious awe. As we possess, however, a public and generally acknowledged code of religious doctrine, which every man is

able to interpret for himself, it is, perhaps, not desirable that any peculiar exposition of it should be prescribed by the authority of the civil government. Every citizen should be permitted to use, and sacredly protected in using, his own right of opinion, and in the privilege of associating with any others of corresponding sentiments, for offering their common devotions to the Deity. A sentiment of religion is deeply implanted in human nature; and it is justly to be expected that each man will be as solicitous to preserve the privilege of expressing it according to his own understanding, or the dictates of his own heart, as the government can be to enjoin it. By trusting to individual feeling and opinion, there can be no danger that religion, so necessary to the existence, so useful to the ultimate improvement of civil society, should perish. The variety of sects will even be useful by their mutual emulation, to preserve alive that pious zeal and that vigilant moral discipline over their internal manners, which will, in the best manner, aid the public virtue in the great mass of society. With the temporary follies of enthusiasm which will sometimes spring up amidst an unenlightened populace, the government has no concern. They turn the mind to religious reflection, and, if not intemperately opposed, they always subside, in time, into some more sober and useful form of religion connected with regular morals. The encouragement, therefore, which good policy requires the civil government to extend to this subject, is to protect every man in the sacred rights of religious opinion, and every denomination in the forms of its own worship, and its internal discipline over its own members. In this liberal indulgence to all sects, the state requires no other guard for its tranquillity, against any tumultuary efforts of enthusiasm, than effectual prevention of individual zeal from restraining, or interfering with the civil privileges of their fellow-citizens." p. 225—228.

Under the head of repelling and repairing wrongs, or on that branch of jurisprudence which respects the defence of the rights of the citizen, he calls the attention to the con-

stitution of the tribunals for the administration of the laws; to the principles by which those tribunals should govern themselves in pronouncing their decrees; to the evidence of crimes; the design, the proportion, and the nature of punishments.

The first maxim in the constitution of the tribunals is, that the judiciary power should be separated in its exercise from the executive and legislative, as far as the necessary union and harmony of movement in all the departments of government will permit.

Another principle of the highest importance in the constitution of the civil tribunals of a free state, is, that not only should the actual exercise of the judicial functions be distinct from those of the executive and legislative, but that all temptation to an undue subserviency to the one or the other may be removed from the judges, provision should be made in the constitution, as far as possible, for their complete independence upon both.

To render the independence of the judiciary complete, it is requisite that their stipendiary provision be as independent and permanent as their official existence.

Another political maxim which has been established by experience, as well as by reason, is, that in a free government the members which compose the supreme judiciary body of the state ought not to consist of a large number.

The purity of the administration of justice, in the next place, is greatly assisted by the publicity of all proceedings in its courts.

The next consideration in the constitution of the tribunals, that should engage our attention, is the means of uniting, as far as is practicable to human imperfection, a perfect knowledge and interpretation of the law, with the most fair and impartial application of it to each case as it may be varied by its attending facts and circumstances.

Finally, to render the constitution of the court and the defence of the people's rights complete, it is an important privilege which should be permitted to every party, to employ as counsel in maintaining their cause, and explaining for them all the laws which have any bearing upon it, the assistance of men who have by time and study made themselves thoroughly acquainted with these voluminous guards of the public liberty.

On the subject of those general principles by which the tribunals ought to be governed in pronouncing their decrees, he has some striking observations, which we trust may be of advantage to our fellow citizens who entertain those narrow prejudices which it is his purpose to remove :

“It is an inquiry frequently made, even by the judicious part of society, whence this rigid adherence to precedents? It is necessary equally, for the stability of the law, and the tranquillity of the citizens. It is absolutely requisite, in a free country, that the discretion of judges be restricted by positive rules which no impulses of favour, or opposition, shall dare to violate, or bend to the purposes of private passion. And no less necessary is it for the general peace, order, and contentment of the country, that each member of the community should, in every event, certainly expect the same decision in his own case which has ever been rendered to others in similar circumstances. By a judicious adherence to precedents, while justice is rendered to the parties, in the individual question before the judges, an important check is imposed on imprudent litigation, arising out of the same, or like subjects of controversy, in all time to come. As long as any uncertainty exists with regard to the issue of controverted questions of right, or property, the self love, and pride of mankind will be ready to disturb the quiet of society by their unfair, or malignant suits at law. This litigious spirit is in train to be repressed, by every decision which contributes to fix immutably a new point in the law.

“It seems, to many persons, strange and unaccountable, that, since the moral duties of mankind are few and simple, and the whole theory of justice and morality may be embraced in a volume, small, and intelligible to the most ordinary understanding, the laws of almost all nations should, notwithstanding, be extended into such ample volumes, and the administration of justice be esteemed such a difficult science, and be, in fact, such a tedious labour. And it has been erroneously conceived, by some immature politicians, that the work of legislation has been artfully magnified, and the whole structure and process of our courts of justice have been artificially complicated and entangled for the benefit of a particular order of men. They have, accordingly, entertained many crude projects in their fancies, for simplifying our civil codes, and reforming the whole order of our judicial systems. That some amendments, if wisely attempted, might be introduced into both, is probable. But in the rage for simplifying, there is great danger that justice would be rendered more uncertain, and the settled order of society, and the tenure of property would, in time, be miserably disturbed. Besides, the true ground of objection to the multiplicity of our laws, and the tedious process of our civil courts, is mistaken. It is not denied, that the knowledge of the moral duties of men in a state of nature, or of civil society, is a very simple science; and its details are reducible within a small compass. When the actions and intentions of men are distinctly known and fairly stated, a fact which is always supposed in every theory of morals, then the conclusion, that is, the grounds of approbation or condemnation, is plain, explicit, and definite. But it is impossible to apply the same simple process in the administration of the laws of the land. Here the fact, that is, the action which is in question before a civil tribunal, is hardly ever distinctly known till sought out by a long process of inquiry, and frequently by a detail of inferences drawn from imperfect circumstances, from dubious and contending evidence, and elicited from contrasted probabilities, which must exercise the ingenuity of the bar, the judgment and candour of the bench; whence it arises, that the decisions

of justice cannot always be clearly and immediately pronounced. The laws of the land, necessarily aiming to reach all the oblique and equivocal actions of men, often obliged to bring to light those which are most occult, and, amidst the innumerable disguises of human conduct, and intention, to search out the true mind and purpose of the action, must employ, for these ends, a vast multiplicity of provisions, which must consequently lay open an immense field of litigation. But after the *fact*, in consequence of these previous investigations, stands manifest in its full and perfect shape, the application of the principles of justice are not more obscure and uncertain than are the plain rules of morality in our domestic and social relations. The theory of morals, when the fact on one side, and the rule on the other, are distinctly presented to view, offers simple and obvious conclusions; the difficulty and uncertainty of the practical application of the rules of justice in civil tribunals arise from the involution and complication of human actions, under the studied arts of disguise." p. 252—255.

After concluding the subject of jurisprudence by considering the evidence of crimes, the design of punishments, their proportion, their nature and end, he proceeds to the subject of politics.

Under this head he treats of the different forms of government and the springs of their action, of laws relative to a monarchy, to an aristocracy, to a democracy, &c.; and then concludes his system of philosophy by giving us a brief sketch of the laws of nature and nations, as they have been laid down by the various writers on that interesting subject. But lest we should exhaust the patience of our readers by dry details of those points which he has filled up with so much interesting matter, and enriched with such various erudition, we must refer them to the work itself for further information. And to the attentive perusal of this work we beg leave, in conclusion, to recommend our fellow citizens

and more especially our young men. To our colleges it will be an inestimable acquisition. We know of no work upon the subject which comprizes so much learning and wisdom in such a small compass. The author discovers himself possessed of an understanding replenished with all the treasures of science, and he pours them forth to his pupils in a pure, correct, and flowing style. On whatever part of his subject he turns his attention, he looks with the eye of a philosopher, and faithfully catches the lineaments of truth and nature. We think him decidedly one of the ablest writers our country has produced, and that his works are among the few that have issued from our press, which will be read with interest by posterity. Happy were the pupils who had such an instructor! and fortunate the institution of learning which enjoyed the illumination of such an intellect to preside over its interests!

ART. II. ANNUAL ADDRESS, *delivered by appointment, before the Society for the Promotion of Useful Arts, at the Capitol in the city of Albany, on the 3d of February, 1813.* By THEODRIC ROMEYN BECK, M. D. *Fellow of the College of Physicians and Surgeons (New-York) and one of the Counsellors of the Society for the Promotion of Useful Arts.* Albany. Websters & Skinner. 8vo. pp. 44. 1813.

A SOCIETY for the promotion of agriculture, arts, and manufactures, was organized in New-York in 1791, and in 1793 an act of incorporation was granted in its behalf by the legislature of this state. Immediately after their formation the society offered to the public the first part of their Transactions; in 1794 a second part appeared; in 1798 they

published their third part, and in the subsequent year a fourth. The copies of their transactions thus published having been extensively circulated and become scarce, a new edition of the whole was printed in one volume 8vo. in 1800.

In 1804, the time of the charter for the society having expired, by the limitation contained in the act of incorporation, another act of the legislature was obtained, renewing its corporate powers, under the name of the *Society for the Promotion of Useful Arts*. This body, thus reorganized, favoured the public with a volume in 1807. That these several productions of the society have largely contributed to the promotion of the important objects for which they were intended, will readily be admitted; their publication having preceded the commencement of our labours, we with propriety forbear from offering any particular observations on their respective merits, and shall confine our remarks to the address now before us, the next in order, and, it is believed, the only one of the performances of the society that has been made public beside those just enumerated.

Little, comparatively speaking, has been our progress in the investigation of the mineralogical resources of America. Mineralogy, as a science, has but lately been introduced among us; and small indeed is the number of its cultivators. Our information concerning the mineral riches of this country is consequently neither extensive nor accurate. That little, however, that is known, it is the object of the present address to collect into one view, and to offer to the reader; and no one, we believe, who duly estimates the great importance of the subject on which it treats, and is desirous of its advancement, can peruse this publication of Dr. Beck insensible of his obligations to the author for his well directed and successful labours.

The account here given by Dr. Beck of the fossils of the United States, with their various application to the arts and manufactures, is the first of the kind that has been attempted, and is alike distinguished for its conciseness and perspicuity. On a subject so novel among us, much time and labour must have been expended in collecting the information which he has brought together, and every page bears evidence of the extent of his researches. On the effects which a knowledge of our native resources may have in promoting the establishment of domestic manufactories, and what influence they may ultimately have upon the morals and happiness of the people, Dr. Beck forbears to enter. "It is more properly," says he, "the province of the politician." The qualifications and pursuits of the politician may, perhaps, enable him in some respects to discuss, with an advantage denied to others, a question of this kind; yet, on a subject so important to the interests of our country, which comes home to the feelings of every member of the community, and with the powerful example of the old world before us, every man must have reflected and have formed an opinion, and the opinion of the majority, we believe, will be found to agree in that expressed by Dr. Beck.

"I may however observe," says Dr. B. "that those establishments which spring up spontaneously, without the aid of imposts, and heavy duties on foreign materials, ought to be encouraged, and indeed must unavoidably flourish. It cannot however be the wish of any true patriot, that the United States should become, in the strict sense of the word, a manufacturing country. The disease, vice, and diversified forms of misery, that exist in those parts of England, from whence our hardware and cloths are obtained, are sufficient to make the most sanguine advocate for the encouragement of manufactures tremble. After all that has been written and said on the subject, together with the notice that our national

legislature are giving to it, the wants of the country are the true data, which must guide to a decision on this subject."

It is unnecessary to enlarge upon the merits of the pamphlet before us; we have seldom seen so much valuable information comprised in so few pages. In order to diffuse this information as far as lies in our power, we shall avail ourselves of copious extracts, confident that they will be read with interest.

On the subject of iron we insert the following:

"The existence of iron in the present United States appears to have been known at a very early period to the colonists. In the year 1620, the company to whom the province of Virginia had been granted, sent out 150 persons to erect three iron works.* The success of this attempt is not stated. In 1645, permission to make iron was granted by the legislature of Massachusetts, and in consequence works were erected in several towns.† Nearly a century afterwards (in 1731) there were in New-England 6 furnaces for hollow ware and 19 forges.‡ In 1715, pig and bar iron were first made in Virginia, and the flourishing state of the manufactories of this metal in the colonies may be inferred from the fact of the British parliament in 1719 enacting several restrictive clauses unfavourable to these works.§ Since the revolution, new mines have been continually discovered, and in general worked to great advantage. At present there is scarcely a state in which iron is not found. From actual enumeration it appears that in 1810, the furnaces, forges, and bloomerics in the United States amounted to 530, of which this state furnished 69.|| If they have increased

* Holmes' American Annals, vol. 1. p. 205.

† Ibid. vol. 1. p. 335.

‡ Ibid. vol. 2. p. 130.

§ Oddy's European Commerce, vol. 2. p. 286.

|| Mitchill's view of the manufactures in the United States, in the American Med. and Philos. Register, vol. 2. p. 413.

with the same rapidity in other states as they have in ours, their number at this time cannot be much short of six hundred. The value of the iron and its manufactories annually made in the United States, is estimated by Mr. Gallatin at from 12 to 15 millions of dollars,* whilst the imported metal, in its forms of bar iron, steel, &c. is supposed to average near four millions. This statement is highly encouraging even if it be compared with the English iron trade. Abounding in mines of excellent ore, and in facilities for working them, it is still found that for seven years (from 1797 to 1803) England annually imported about 43,000 tons of iron.† The value, indeed, of her manufactories consist principally in labour. The exquisite state of workmanship to which the various forms of iron are brought, and the extent of her commerce, places it among the most productive branches of national industry. The metal which is used in Great Britain in the process of steel making, is procured from the district of Roslager in Sweden.‡ It is obtained from the ore called *magnetic iron stone*, which is so pure as to yield from 80 to 90 per cent. of iron. In due process of time, the nation which furnishes this rich material, is obliged to become a purchaser of the finished goods. These facts deserve the attention of the enterprising in this country. Sweden is much indebted for the high character which her staple commodity holds in foreign markets, to the care that is bestowed in its preparation. The crown, as well as the proprietors of iron works, interest themselves in preserving its reputation.§ A subject so intimately connected with domestic improvements, certainly deserves the fostering care of government.

*Gallatin's report on the state of American manufactures in 1810. The manufactures of iron in the state of Pennsylvania amounted in that year to the value of 5,869,487 dollars. (Mease's Picture of Philadelphia, p. 80)

†Oddy's European Commerce, vol. 2. p. 290.

‡Jameson's Mineralogy, vol. 2. p. 273. Chaptal calls it Rosalgia.

§Jameson's Mineralogy, vol. 2. p. 271. The various regulations adopted by the crown and the iron masters, are noticed by Oddy, and also in Porter's travels in Sweden. Vide Pinkerton's Collection of Voyages and Travels, vol. 6th.

"The ores of iron which are found in this country, are for the most parts, *magnetic iron stone, brown hæmatite, and bog iron ore.** The *sparry iron stone* has also been discovered and used. These different kinds are among the most valuable species of the mineral. They all yield an abundant per centage of ore, so as in most cases to bring a handsome profit to the proprietors. Several local circumstances conduce to this end. The cheapness of charcoal, the almost inexhaustible supply that our forests promise, the beds of coal that are continually discovering, are all arguments in favour of our nurturing this domestic manufacture. The only deficiency appears to originate from the want of workmen who are sufficiently intelligent, or acquainted with modern improvements. The consequence is, that the iron has not been properly prepared, and holds in our markets a comparatively small value, on account of its inferior quality.† A short period of time will doubtless remedy this defect. Men of capital and information are taking these establishments into their hands, and will press into their service American ingenuity and talents, together with all the aid that emigration affords.

"Although foreign iron (particularly Russia and Swedes) has in general the superiority of character in our markets, yet there are some instances in which American ranks higher than either; this is particularly the case with that manufactured at the *Ancram iron works* in this state. It is said to be superior to any now in use for iron wire, chains, &c. since it combines malleability and strength in a remarkable degree. This kind of iron sells at a higher price than either of the above.

"An enumeration of what has been effected in this branch of manufactures, will evince our rapid improvement, as well as mark what is yet to be done. Our domestic resources at this time sup-

* In noticing various minerals, I have adopted the names, and in general the arrangement, used by Jameson in his system of oryctognosie.

† This fact is noticed by Mr. Gallatin in his report. Vide also Col. Gibb's notice of the Vergennes' iron works in Bruce's Min. Journal, No. 2. p. 84.

ply us with almost every article that is needed in agricultural labours. Should it be found impracticable at any period to procure iron from foreign countries, the present works would doubtless be fully competent to meet the demand. The various implements which are necessary in husbandry, and the thousand uses to which different forms of this metal are applied on farms, together with those needed for domestic and culinary purposes, employ much of the active industry of our citizens. Various mechanical occupations also consume a large quantity of iron. Ship building is an art in which a vast amount is used. The contrast between our situation half a century ago, and our commercial greatness some years since, "when our thousand sails whitened every sea, and visited every shore," is a proud proof of our advancement in naval architecture.* In some instances our progress is still more striking. Gen. Hamilton, in his masterly report on manufactures, states, that in the year 1790, there were imported into the United States 1,800,000 pounds of nails.† In 1810, (though we still imported this article in considerable quantity,) there were manufactured in this state alone, nails to nearly the same amount. The making of cut nails is claimed as an American invention;‡ if this be the case the nation possesses the honour, as well as the advantage of so useful an improvement: It appears to have originated in the state of Massachusetts as early as the year 1787."§ p. 13—17.

* Among the documents accompanying the report of the naval committee, made at the present session of congress, there is an estimate of the expense of building a 74 gun ship, by Mr. Humphreys, a ship builder. The whole amount of cost is estimated at 342,700 dollars. Of this 39,100 dollars is put down for smiths works, anchors, &c. more than 1-9th of the whole expense.

† Page 83. Williams and Whiting's edition.

‡ By Gallatin, vide report.

§ In the town of Cummington, (Berkshire) they were first made from hogshead hoop. For these and several other important facts I am indebted to Mr. S. Stafford, one of the proprietors of an extensive iron furnace in this vicinity. [Since delivering the address I have been informed by Mr. Benjamin Peck, of Milton, (Saratoga county,) that the credit of the invention is due to Mr. Josiah Waterman, of the town of Cumberland, in the state of Rhode-Island. It was

"Among the various compounds of iron, there are some which deserve attention from their extensive employment in the arts. *Iron pyrites*, or sulphuret of iron, is one of these. From it the *sulphate of iron*, or copperas, an article much used in dying, is formed. It is manufactured in large quantities in the states of New-Jersey, Tennessee and Vermont.* The process by which it is obtained is so simple, that it requires but little ingenuity and care to prepare it pure. The New-Jersey copperas is by many considered superior to the imported article.*

"The *chromate of iron* has been discovered by Mr. Godon in the vicinity of the city of Baltimore." p. 19—20.

We have the following concerning copper :

"In the scale of importance *copper* holds a station only inferior to iron. Its history is however not so creditable to American enterprise. It is found in the states of New-York, New-Jersey, Connecticut, Massachusetts, Virginia, and South Carolina, and travellers also state that there are rich mines on the south side of Lake Superior, within the American territory. In many of these places the ore is rich, yielding in some instances 75 per cent. of pure metal, together with some silver, yet at present there is not a copper mine worked in the United States. Congress, in 1800, authorized the president to employ an agent for the purpose of exploring the country near Lake Superior. This enterprise, which promised us an acquaintance with our mineral riches, was aban-

commenced as early as the year 1776, and the first use to which they were appropriated was the making of cards. Mr. Peck is now the partner in the iron trade with the inventor's son.]

*The quantity of copperas annually manufactured in Tennessee is 56,000 lbs. in Vermont 8,000 lbs. Mitchill's View of Amer. Manufactures, in Amer. M. & P. Register, vol. 2. p. 411. By calcining copperas to a red heat, the *crocus* of commerce is formed.

†Pyrites is found in other states beside those above enumerated, particularly in New-York and Massachusetts.

done before the agent had commenced his journey.* In 1719, a copper mine was discovered in New-Jersey, by Mr. Schuyler, situated between the Passaic and Hackensack, which still bears his name. The ore was found to be rich, but was shipped to England in its raw state, in consequence of the prohibitory regulations of the British government. Before the year 1731, the proprietor had exported to Bristol, about 1386 tons. The mine continued to be worked with success, until the commencement of our eventful revolution, since which period the attempts made to work it have failed.†

“Copper in its various mineral forms has been found in different parts of the country, and many elegant specimens adorn the cabinets of American mineralogists.‡ The copper used in the arts is, however, altogether imported. It is procured from Cornwall in England, and from South America, principally in the form of sheets and bolts. In this state, it is applied to many important purposes. It is used in very large quantities in ship building. Coppering vessels is found to preserve them longer from the effects of warm climates, as also from the attacks of the *Teredo Navalis*, which destroys the wood. It facilitates sailing, by presenting a smoother surface.

“The various mordants which have this metal for a basis, such as the *sulphate* and *acetate of copper*, commonly known by the names of blue vitrol, and verdigris, are altogether obtained from foreign countries. The latter is procured from France.

“Copper is also extensively used in combination with zinc, tin, and other metallic substances. These alloys, together with their application in manufactures, will be mentioned, after noticing the original metals.” p. 20—21.

* Med. Repository, vol. 6. p. 211.

† Latrobe's account of the Schuyler copper mine in New-Jersey. Med. Repository, vol. 6. p. 319.

‡ Vide the additions of the American editor to the article copper in Rees' Cyclopaedia, for an account of the various species of copper found in the United States.

The following shall conclude our extracts :

" *Tin* is procured from England, South America, and India. It is imported in the form of sheets, which is iron tinned over, or of block tin. From the first are manufactured vessels for culinary and domestic uses. This branch of industry is almost solely monopolized by the states of Connecticut and Massachusetts. It is estimated that in the former, tin plates and iron wire to the amount of 250,000 dollars, are annually used in this manufacture, and the annual value of the tin plate works of Massachusetts, according to the enumeration of 1810, is 37,000 dollars.* These wares are sold throughout the union from Louisiana to Vermont.

" Tin is also used in coating articles made from iron, to remedy the inconvenience arising from the facility with which the latter metal rusts. In this form, many things are prepared, particularly such as are required in horsemanship, such as harness, stirrups, bridles, &c. Several small establishments of this nature are springing up in various parts.

" The principal application of block tin, is its union with lead and antimony, forming the compound called *pewter*, from which various articles are made.†

" Among the alloys of copper, a notice of those most important as well as most commonly used in the United States, will be sufficient.

Brass is the most valuable. It is generally formed by calcining the calamine (the ore of zinc) with charcoal, and afterwards fusing the compound with plates of copper. After refining it, the brass becomes an article of commerce, and is imported into this country, principally from Great Britain, whose mines of calamine in Derbyshire, supply a large proportion of the brass works in Europe.‡

* Morse's Geography, article Massachusetts.

† It is stated in Mr. Spafford's Gazetteer of the state of New-York, (now in the press,) with which I have been favoured by the author, that ores of tin have been found in the Highlands, and in Essex and Clinton counties.

‡ Chaptal's Chemistry, vol. 3. p. 285.

This alloy is found to be infinitely more ductile than the original metals, and is in consequence drawn into wire, from which pins, sieves, &c. are manufactured. In this country it is principally used in the making of stills, and other vessels. Buttons are also made in small quantities.*

"The union of copper and tin forms *bell metal*. A foundery for casting bells was erected more than forty years since in Massachusetts,† and the business has been continued in that state ever since; in 1810, the value of those cast was 3,555 dollars. Similar establishments exist in Philadelphia, and in the vicinity of this city.

"Brass guns, as they are styled, are formed from a similar compound; the zinc is generally considered a useless addition. They are cast at several founderies.

"The tinning of copper vessels for domestic purposes, is a common occupation. From the deleterious properties of copper, it has been proposed to substitute zinc; and the project certainly deserves encouragement.‡

"Tin is found to have a great affinity for mercury, and has, in consequence, been used in silvering *looking glasses*. This trade is conducted to a considerable extent in our large cities.

"Traces of several other metals have been observed throughout the United States.

"*Antimony* has been found in the state of Connecticut, and indications of its existence are said to occur in the southern states and Louisiana. When it is recollected, that in conjunction with lead, it forms *type metal*, its value appears manifest. Without it the art of printing, an art which rescued the world from barbarism, cannot be conducted.§

* The union of copper and zinc by various processes, and in different proportions, forms pinchbeck, tombal, tinsel, manheim-gold, &c.

† Holmes' Annals, vol. 2. p. 296.

‡ Various proportions of copper and tin, form bronze and speculum metal.

§ Chaptal mentions that the best proportion for type metal is 80 parts of lead

"A mine of *Cobalt*, combined with arsenic, has been discovered in North Carolina, and another of the same kind (*white cobalt*) exists at Chatham (Connecticut.) In its state of oxyd, this metal is used for giving various shades of blue to glass and enamel. All the *saffre* and *smalt* (the names by which it is known in commerce) used in this business are at present made in Germany.* It is contemplated to commence a manufactory of smalt at the North Carolina mine.

"*Manganese* in the state of black oxide, has been discovered at Ancram,† and several other places in this state, and *molybdena* exists in various situations. *Arsenical pyrites* are found in the district of Maine. To Mr. Hatchett we are indebted for the analysis of *columbite*, containing a metal once supposed peculiar to this country, but which the latter investigations of Wollaston have identified with tantalum.‡ *Menachanite*, *rutile*, and *negrine*, all species of *titanium* or *menachine*, have been observed.§

"In *silver* and *gold* we fortunately are not abundant. To our citizens, indeed, the discovery of a bed of gypsum, or of salt, would be of infinitely greater use than the possession of the Peruvian mines. The latter metal has, however, been found in Virginia on the surface of the ground, and in Cabarras county in North Carolina. In 1805 a quantity of virgin gold was brought from the latter place to the national mint, and coined into money to the amount of 11,000 dollars. It still continues to be found in creeks, and the sand bordering on them. In coinage, copper is added to the gold to give it tenacity.

and twenty of antimony. The antimony renders the compound harder, but if too much be added, it becomes brittle.

* Vide Rees' Cyclopaedia, art. *cobalt*, for a detail of their manufacture; also Nicholson's Dictionary of Chemistry.

† By Dr. Bruce, vide Med. Repository, vol. 11. p. 442.

‡ Bruce, No. 1. Appendix. Gov. Winthrop sent this mineral to Sir Hans Sloane, whose collection forms a part of the British Museum.

§ Maclure's Observations on the Geology of the United States, in the American Philosophical Transactions, vol. 6. p. 421.

"The manufacture of plated ware, and jewelry, is very extensive and valuable. Mr. Gallatin states the annual value of the first alone, in Philadelphia, at 100,000 dollars. This trade flourishes in every city on the continent." p. 21—24.

Scarcely two years have elapsed since we had occasion to notice a performance by Dr. Beck, as a graduate of the University of New-York. We are pleased that in so short a time we have an opportunity of renewing our acquaintance with him. In the infant state of the arts in this widely extended and highly diversified country, where so little has been effected, and where so much remains to be done, where (we trust our application of the language of scripture will not be deemed irreverent,) the harvest truly is great, and the labourers are so few, we greet with a hearty welcome every new and ardent adventurer in the extensive field of science. In the interesting department of natural history, the productions of America call loudly upon our attention; and we hope that ere long the erroneous, meagre, and partial accounts of illiterate and mercenary tourists will give place to the ample and faithful details of the learned and the liberal, who possess the ability and the disposition for investigations of this kind, and who alone, by a proper residence among us, are qualified for the undertaking.

ART. III. *An Inaugural Dissertation on the Eupatorium Perfoliatum of Linnæus: submitted to the public examination of the Trustees of the College of Physicians and Surgeons in the state of New-York, Samuel Bard, M. D. President, for the degree of Doctor of Medicine, on the 4th day of May, 1813. By ANDREW ANDERSON, A. B. Member of the Medical and Surgical Society of the University of New-York. New-York. C. S. Van Winkle. 8vo. pp. 75. 1813.*

An Inaugural Dissertation on Angina Pectoris, submitted, &c. By HENRY BOGART, A. B. Member of the Medical and Surgical Society of the University of New-York. New-York. C. S. Van Winkle. 8vo. pp. 56. 1813.

PLURES habent doctores quam doctos, is an adage which we fear applies with too much truth to most American universities. Certain it is that in this age of literary honours, those titles of distinction, which once were considered the surest evidence of the superior learning and talents of the persons upon whom they were bestowed, have lost much, very much, of their former value. But painful as the reflection upon a circumstance of this kind must necessarily be to all who are solicitous for the promotion of real science, we shall not here inquire into the causes which have led to it. To those acquainted with the nature and plan of government of the numerous collegiate establishments in the United States, such an examination would be unnecessary; and for the satisfaction of those who are not, we should have to indulge in an extent of remark incompatible with our prescribed limits. We cannot, however, altogether omit at this time to make one or two observations on the publica-

tion of an inaugural dissertation as the duty of every candidate for medical honours. We altogether differ from those who consider this as an "unnecessary procedure," and are decidedly of opinion, that it is one of the most important and effectual regulations that can be adopted by our universities, if they wish to attain a becoming respectability, or even to preserve the reputation they may have acquired, and that it should in all cases be enjoined as an indispensable requisite to the obtaining a diploma. The reasons which we have heard assigned why he who is to have the honours of a liberal profession conferred upon him, should be exempted from presenting those claims for such distinction, which by the learned among other nations have always been demanded, are, to say the least of them, weak and unsatisfactory. If the candidate for the medical doctorate have nothing more to offer for that high honour than an "imperfect transcript of the opinions of his preceptor;" if his performance be "crude and unfinished," serving only "to diminish the reputation of the school" in which he was educated, and such as "at the expiration of a year or two he himself will be ashamed to see or to acknowledge,"* what right, we ask, has he to expect to be crowned with the academic wreath, and to assume that station to which his talents and attainments give him no title. And where, we may add, is the individual who, aware of the consequences thus resulting to society, by countenancing so lax a discipline, can yet conscientiously become an accessory to so great an evil.

Principals and trustees, presidents and professors, would

* Incredible as it may seem, these reasons, among others, have actually been assigned in excuse for the present American method of dispensing medical honours. See Barton's Medical and Physical Journal, vol. iii. part i. p. 184—185.

do well to recollect, that the reputation of a seminary is not independent of the *acquirements* of its pupils. If the present system, now so fashionable in some of our universities, be pursued, and the chief emulation be the *number* of graduates, it is not hazardous to predict that at no distant period, what has heretofore been deemed a liberal science will be degraded into a mechanical art; and that a diploma in medicine will become as common, (we had almost said as little respected,) as the *license* of many of our county medical society.

We were led to these reflections upon opening the interesting pamphlets before us. It is an auspicious omen, that comparatively so many of the graduates of the College of Physicians and Surgeons publish their collegiate exercises for their degree, when the statutes of the university do not exact it from them. The late union of the medical schools of New-York, which we have elsewhere noticed,* promises to be productive of the greatest advantages to the interests of science in this country; and among other benefits which it will confer, we hope will be that of making what is now a voluntary act on the part of the student a prescribed and peremptory duty.

The object of Dr. Anderson's dissertation is to ascertain the medical virtues of one of the indigenous productions of this country, and thus to increase the *materia medica* of the United States. For this purpose he made choice of the *eupatorium perfoliatum*, one of the most common of our vegetable products, and which, for a considerable time, has been employed as a domestic remedy in the management of certain diseases. He has judiciously considered his subject under three heads, and first gives a botanical description of

* See a subsequent part of the present number of the Register.

this species of the eupatorium ; secondly, its character as ascertained by chemical analysis, and thirdly its virtues as a medicine. This genus of plants appears, according to Dr. A. to have been known at a very early date ; as in the writings of Avicenna mention is made of the eupatorium. But the particular species to which Dr. A. has more particularly confined his attention, is the eupatorium perfoliatum, which has received a variety of names, such as thoroughwort, Indian sage, cross-wort, bone-set, vegetable antimony, &c.

This plant has been long employed by many of our Indian tribes as a successful remedy in the treatment of intermitting and remitting fevers ; and at times, is had recourse to as a useful domestic prescription among families remote from our principal cities. In the treatment of the yellow fever of the United States, and in other febrile disorders, its efficacy as an active sudorific has been acknowledged by many writers. With a view however of ascertaining more particularly its peculiar properties and its virtues, as an article of medicine, a series of experiments was instituted by Dr. Anderson. These experiments are twenty-six in number, and in justice to our author, we do not hesitate to say, they appear to have been conducted with the greatest accuracy, and in a manner highly creditable to his character. The observations on the experiments, and the conclusions which he has drawn from them, are judicious and satisfactory, and evince an unusual portion of chemical knowledge. The whole of this part of Dr. A.'s dissertation will be read with advantage : we regret we have not room for a more copious extract.

“ From the experiments which were instituted, and the results which I have attempted to deduce from them, it seems to be satisfactorily proved, that the eupatorium perfoliatum contains, first,

a free acid ; secondly, tannin ; thirdly, extractive matter ; fourthly, a gummy matter ; fifthly, a resin ; sixthly, azote ; seventhly, lime, probably the acetate of lime ; eighthly, gallic acid, probably modified ; ninthly, a resiniform matter, soluble in water and in alcohol, and which seems to contain a bitter principle. That the free acid may be obtained from all parts of the plant : that tannin is obtained in much the largest quantity from the leaves, and least from the roots : that the extractive and gummy matter resides chiefly in the roots : that the leaves and flowers also contain a larger proportion of resin than the roots : that azote exists in the flowers, leaves, and roots." p. 49.

The pharmaceutical preparations of this species of the eupatorium which he recommends, are the decoction of the flowers and of the leaves, infusions of the same parts, the leaves in substance pulverised ; and a tincture of the flowers and of the leaves prepared with proof spirits. This last form is the most pleasant, and, at the same time, the most powerful ; for proof spirits was found to be the best menstruum.

The eupatorium, he concludes from experiment, possesses most of the properties belonging to the peruvian bark ; and that as a tonic and sudorific it will not suffer by comparison with most of the articles drawn from the vegetable kingdom ; such as the marubium vulgare, the anthemis nobilis, &c.

From the opportunities which Dr. A. enjoyed of witnessing the employment of this plant in different diseases in the New-York Alms-House, and from the observations and experience of several distinguished practitioners, he was led to believe it an important and efficacious remedy in the treatment of most febrile disorders, in intermitting and remitting fevers ; in yellow fever and other diseases of specific contagion ; in many cutaneous affections, and in diseases of general debility. As a tonic its virtues were practically illustrated

in several cases of intermittent fever the particulars of which are here minutely given. In remitting fever he also had many opportunities of testing its value. In the treatment of the yellow fever he warmly recommends its use from the practice of the venerable president of the College of Physicians and Surgeons of New-York, Dr. Bard, and from that of Dr. Hosack. In the late typhoid peripneumony which prevailed with so great mortality in different parts of the United States, Dr. A. has also brought forward a number of interesting facts which prove the efficacy of the eupatorium as a sudorific and tonic after proper evacuations had been employed. In a peculiarly obstinate cutaneous disorder it was found of singular efficacy, and in dropsy, when a disease of debility, an alcoholic tincture of the pulverized leaves and flowers was very liberally had recourse to, and with singular success.

We cannot conclude without expressing our satisfaction with the interesting dissertation of Dr. Anderson.

Few diseases in the system of nosology are more peculiar in their character, or fatal in their consequences, than *angina pectoris*. It therefore cannot but appear remarkably singular, that so important a disorder should have altogether escaped the attention of the ancients, and that we should be indebted to authors of comparatively late times for all that has been written concerning it. In 1768, Dr. Heberden read before the College of Physicians of London, an account of a disease of the breast, distinguished by very peculiar symptoms, and which he published in the second volume of the Medical Transactions. He denominated it *angina pectoris*, a name most characteristic of the disorder. Previous to the time of Dr. H. however, some notice was taken of an affection in many respects similar to that which

he described; and from the apt quotation, by Dr. Bogart, of the *Consultationes Medicæ* of Hoffman, and of the elaborate work of Morgagni, we have no doubt that these distinguished observers had witnessed cases of the same kind. The valuable treatise of Heberden gave rise to a spirit of inquiry on the subject, and interesting observations were soon after made and recorded respecting it, by Drs. Wall, Fothergill, and Percival. Parry and Butter, of Great Britain, also furnished the profession with distinct treatises on it, the former under the name of *syncope anginosa*, the latter under that of *diaphragmatic gout*. The German writers, Elmer and Schmidt, directed their attention to it, and distinguished it by the names *asthma convulsivum* and *asthma arthriticum*. Dr. Darwin took the same view of it, and called it *asthma dolorificum*; but Darwin, however distinguished for his verses, is scarcely to be quoted as an authority in the practice of medicine.

We shall give Dr. Bogart's description of the symptoms of this disease in his own words:

“The attacks of angina pectoris are, in most instances, sudden, and occur in those who have previously enjoyed perfect health. In a few cases, various painful affections of different parts of the body have been observed to precede them. Spasms and indigestion of the stomach, and pains in the limbs, are not unusual, which are, for the most part, removed, or diminished in violence, on the appearance of the disease, the first symptom of which, is an acute pain or stricture, commencing in the region of the sternum, and shooting, with peculiar pungency, in the direction of the pectoral muscle, confining itself chiefly to the left side, and sometimes affecting the left arm.* In two cases recorded of this disease, the

*In twelve or thirteen persons, whom Dr. Wall had seen, the pain was in the direction of this muscle, affecting one, or commonly, both the arms. It is remarked by Dr. Heberden, that a soreness has been felt in these parts.

sensation in the superior extremities was compared, by the patients, to the rushing of a hot fluid; very often it is that of a numbness only. It is generally noticed when the disorder is considerably advanced, though sometimes it is altogether absent; being by no means, as Dr. Parry observes, essential to angina pectoris. The patient is usually seized in this manner while walking, or on going up an acclivity. Though the pain is violent, and comes on suddenly, yet it generally is of short duration, and, in some instances, hardly engages the attention of the patient. A case, however, is related by Dr. Parry, of the Rev. Mr. S. in whom the pain continued from the first attack of the disease until its fatal termination, and, in which, it was without an interval, subject only to exacerbations. On standing still, the pain in the commencement of the complaint ceases; but, after repeated paroxysms, it remains for some time, accompanied with oppressed breathing, anxiety, sighing, palpitation of the heart, and coldness of the extremities; an agonizing struggle for existence ensues, attended with an apprehension of instant death.

“This pain, or constriction, comes on in paroxysms, which in the beginning of the disease do not take place so frequently or so intensely as when it is more advanced.

“The paroxysms of this affection, as to their duration, are also various; they, at one time, terminate in a few minutes, and at another, last hours, and even days, and occasion the severest distress. Dr. Heberden met with one case, in which the paroxysm continued for several days. Dr. Black, of Newry, Ireland, has recorded a very interesting example of the disease, the last paroxysm of which commenced on Friday morning, and lasted till Saturday evening. When I visited my patient, says the author, I found him in exquisite torture; the pain was constant, but every minute, or every two minutes, it shot with peculiar violence and pungency from the left breast towards the scapula, producing each time a convulsive start, in which every muscle in the body seemed to be affected. He continued in the greatest agony till four o'clock,

Sunday evening, when he expired.* Repletion of the stomach, walking, the indulgence of the passions, especially those that are violent or attended with anxiety, are frequently their exciting causes. In the case of Mr. J. Hunter, the spasm was most usually excited by anxiety, or by the indulgence of the violent passions: the more tender affections of the mind did not produce it; he could relate a story which called up the finer feelings, as those of compassion and admiration, so as to make him shed tears, without suffering from a return of the pain. But as the disorder proceeds, no particular cause is essentially necessary for the return of the paroxysms. The pain is often relieved by eructations of wind, by straitening the vertebræ of the thorax, and by resting after a full inspiration. It is always increased by motion, and mental irritation.

“No uniformity is observed in regard to the state of the pulse during the paroxysms. It may be remarked, however, that the best written histories of the disease, do not afford satisfactory information on this point. It is represented to be sometimes not materially affected. In two cases, recorded in the *Medical and Physical Journal*, vol. 6. p. 321, the arterial system was not much affected, even during the fits of pain and oppression, although the patients suffered little short of suffocation; and Heberden also observes, that sometimes it is not in the least disturbed.† At other times, essential deviations from its healthy state have been noticed; the circulation being much affected; the pulse contracted, small, and irregular. Its condition probably varies, and depends on the severity and duration of the pain; yet, there can be little doubt, that the pulse must, at times, give evidence of disturbed circulation. Doctor Hosack, who has frequently met with the disease, mentions, that in the case of a patient whom he attended, and who had suffered repeated attacks, the pulse was remarkably hard. In the intervals of the paroxysms, it is regular and

* *Mem. Med. Society of Lond.* vol. 4. p. 267.

† *Diss. Med. de Angina Pect. auct. C. J. Schmidt*, in *Annals of Med.* vol. 1. p. 198.

natural, and the patient is free from every symptom of the complaint." p. 24—29.

Dr. Bogart enters at some length into a consideration of the causes of this remarkable affection, and succinctly delivers the opinions of the most eminent practitioners relative to them. Dr. Heberden concluded that the principal symptom was produced by a convulsion of the part affected. Dr. Wall, having discovered indurations of the semilunar valves at the origin of the aorta, with other diseased appearances of the heart, attributed the origin of the complaint to a rigidity of those valves. Dr. Matthew Baillie maintains a similar opinion relative to the induration of the valves of the heart. Dr. Fothergill believed that excesses of passion and anxiety contributed more to the increase of the disorder than a combination of all the other causes. Dr. Parry's theory is, that angina pectoris arises from an induration of the coronary arteries, and that this kind of mal-organization acts by diminishing the energy of that organ.

We have not room for the arguments Dr. Bogart has adduced in opposition to this popular theory of Dr. Parry: we think he sufficiently disproves it, from the experience and observations of many distinguished practitioners. The opinion which Dr. B. forms of the nature of angina pectoris is, that it proceeds from a *plethora of the blood-vessels, more especially from a disproportionate accumulation in the heart and larger arteries*; an opinion maintained by Dr. Hosack, in a former number of the Register, and to which Dr. B. refers.* He considers the large accumulations of fat, the

* American Medical and Philosophical Register, vol. ii. p. 365—366.

effusion of water in the thorax and pericardium, the distended state of the vessels, and even the bony deposits occasionally met with in the valves of the heart, as the effects of such plethora.

"We observe in confirmation of his (Dr. H.'s) opinions, that almost every writer on the complaint, has commenced his cases by remarking the age and habit of the patient. The advanced life and corpulent habit are of so frequent occurrence, that no doubt can be entertained of their relation to the disease. The season of the year at which the first attack commenced, is not recorded with the same particularity; but when noticed it was most usually in the winter and spring of the year.* Most of the patients afflicted by the disorder, had lived in a sedentary manner. Spontaneous discharges of blood, from different parts of the body, giddiness, and numbness of the extremities, were often observed, and are all evidences of a plethoric state of the system." p. 40.

The summary of morbid appearances with which we are furnished is taken from Dr. Parry's Inquiry, but considerably altered and enlarged.

On the *cure* of this afflicting and unfortunately too fatal disorder, we shall insert Dr. B.'s valuable remarks entire.

"Instances of the angina pectoris have frequently occurred; its symptoms and causes have been investigated; but small is the progress which has been made in the discovery of remedies necessary for its cure.

"The question naturally arises, to what is this to be attributed? Previously to our answering, we shall examine, in as concise a

*Vide Med. Mem. vol. i. p. 376, also the same, vol. iv. p. 261. New England Journal, vol. i. Med. and Phys. Jour. vol. xvii. p. 9. also cases of Rev. Mr. S. and Mr. M. in Parry's Inq.

manner as may be consistent with perspicuity, the principles on which the different modes of cure have been proposed, and the success that has attended them.

“Doctor Heberden considered spasm as the cause of the complaint, and, therefore, prescribed those medicines which relieve and quiet convulsive motions; opiates effectually prevented or weakened the night fits. Bleeding, vomits, and other evacuants were of disservice in his hands; it is not mentioned whether they were used during the paroxysms, or in the intervals.

“The advocates of the theory that the disorder is occasioned by an accumulation of fat about the heart, endeavour to remove or diminish it by evacuating the thinner fluids of the body, by means of issues, and by increasing the secretions.

“Dr. Parry, who attempted to prove that ossification of the arteries depends on an increased impetus of blood, more especially when amounting to inflammation, supposed that abstinence from bodily exertions, and attention to the means of obviating an inflammatory diathesis, would have considerable effect in preventing the organic lesion of the coronary arteries.

“On the attack of this malady, his first indication is to obviate the fulness of the vessels, which acts by oppressing the heart, weakened by disease, and deficient in energy. Regimen and medicine are the means used for that purpose; of the latter, he recommends bleeding, purging, and issues.

“Speaking of blood-letting, he remarks, that it must be employed with great caution; that a degree of stimulus may be left sufficient for the purposes of healthy circulation. He confesses that he is unacquainted with the actual effect of that remedy.

“Purging appears to him to disorder the circulation in so great a degree that it cannot be safely employed.

“In cases where there may be reason to suspect plethora, issues are recommended, especially when danger is to be apprehended from the more speedy evacuation by venesection. During the paroxysms, in cases of imminent danger, he advises bleeding, the use also of purgatives and enemata. Stimulants, he observes, can

be safely taken, only so far as they may be required to remove flatulency from the stomach; or their use should be referred to that period, when, after the failure of the other means suggested, the pulse is not at all, or scarcely to be felt.

"In fine, Dr. Parry regrets, that the most important part of his subject, that which respects the cure, or relief of the complaint, should have been so defective.

"On the supposition, that a diminished energy of the heart is the cause of the disease, the argentum nitratum has been prescribed; taken into the stomach, it was supposed to produce its effects through the medium of the nerves.

"Fowler's solution of arsenic, the application of a solution of the tartrate of antimony to the breast, cituta, hyosciamus, and other narcotics, are all said to have been used with some advantage.

"Dr. Schmidt observes, that the radical cure is very difficult, especially if the disease has been of long duration, but that it is not to be considered as an incurable disorder; he had met with several instances of patients who had laboured under it and were restored to perfect health. Regarding it as a case of spurious gout, he has two indications of cure, which it would be needless here to mention. The angina pectoris can have no farther relation to the gout, than as this latter disease depends upon an overloaded condition of the vessels, which, indeed, is one of its most common causes.

"We have thus stated, as far as the limits of an inaugural dissertation will permit, the respective modes of cure adopted by different writers. That they should have differed so materially, was to be expected from the different views entertained by medical men as to the nature of the disease. Regarding some one remarkable symptom or appearance as characteristic of the disorder, to the exclusion of others, equally important, they have necessarily, in many instances, limited their view, and been inadvertently led into error.

"We have already given the particular opinions entertained by

Dr. Hosack relative to the nature and treatment of angina pectoris; the successful result of his practice in the complaint appears to afford sufficient evidence of their correctness. The remedies which he prescribes, with most advantage, are those which are calculated to diminish the fulness of the system; for this purpose he has recourse to copious and repeated blood-letting, active cathartics, as jalap, calomel, gamboge, and other evacnants; and for the removal of the spasm, palpitation of the heart, and coldness of the extremities, æther, volatile alkali, the compound spirits of lavender, and other diffusible stimuli, are exhibited. Opiates, by lessening, and occasionally suspending the spasm, are also used with advantage, especially after blood-letting has been freely employed. Warm bathing and friction of the extremities, from the experience of their beneficial effects, are also highly useful by promoting the circulation in the extremities, and a determination to the surface of the body, and thereby proportionally diminishing the fulness of the heart and larger vessels.

“Independent of the medicines here recommended, our chief hope for preventing the returns of the disease must be placed in the diet and regimen. The diet of the patient should be plain, easy of digestion, and composed of a due proportion both of animal and vegetable food; but the use of wine, ardent spirits, and especially malt liquors, and the usual condiments of the table, should be carefully avoided, or very sparingly taken; late suppers should also be totally prohibited.

“Regular and daily exercise, flannel worn next the skin and frequently renewed, by their effects in promoting the excretions, no less contribute to counteract the plethora to be guarded against.

“A control of the passions, as has before been observed, is no less necessary to prevent a return of the paroxysms of this disease.” p. 49—56.

DOMESTIC INTELLIGENCE.

Medical School of the University of the State of New-York.

IN the Register for July last, p. 105, &c. the editors presented their readers with, "An Historical Sketch of the Origin, Progress, and Present State, of the College of Physicians and Surgeons of the University of New-York." It is with great pleasure they are enabled to state, that since that time a union of the Medical Schools of New-York has taken place, and that the Faculty of Physic of Columbia College, united with the College of Physicians and Surgeons, now constitute the state medical establishment, under the patronage of the Legislature and the Honourable the Regents of the University.

The following circular address, announcing the union of the schools, and the ample system of instruction now afforded by the college, has accordingly been published by the university. ED.

University of the State of New-York—College of Physicians and Surgeons.

THE union of the College of Physicians and Surgeons with the Faculty of Physic of Columbia College, so long desired by the friends of science, has at length most happily taken place. In April, 1811, the honourable the regents of the university expressly endeavoured to effect this important

object; fully impressed, as they professed themselves to be, "with the advantages to the state, which a well organized medical school in New-York must afford." For this purpose the Regents new-modelled the school of medicine at that time, with a view of introducing into it the professors of the medical school of Columbia College, and other eminent and distinguished individuals; that thus united in one institution, the medical talents of both seminaries might be a greater benefit to the public, and still better entitled to the patronage and encouragement of the legislature.

The following arrangement, therefore, has been concluded, and will be carried into operation at the ensuing session of the College of Physicians and Surgeons, which will commence on the first Monday of November next, at their new and spacious buildings, recently completed in Barclay-street.

Anatomy, Physiology, and Surgery, by Dr. WRIGHT POST, and Dr. JOHN AUGUSTINE SMITH.

Theory and Practice of Physic, by Dr. DAVID HOSACK.

Clinical Surgery, at the New-York Hospital, by Dr. POST.

Clinical Practice of Medicine, at do. by Dr. WILLIAM HAMERSLEY.

Obstetrics and the Diseases of Women and Children, with practical illustrations at the Lying-in-Hospital, by Dr. JOHN C. OSBORN.

Chemistry and Pharmacy, by Dr. WILLIAM J. McNEVEN.

Medical Jurisprudence, by Dr. JAMES S. STRINGHAM.

The Principles and Practice of Surgery, by Dr. VALENTINE MOTT.

Materia Medica, by Dr. JOHN W. FRANCIS.

Natural History, including *Botany and Mineralogy*, by Dr. SAMUEL L. MITCHILL.

Natural and Experimental Philosophy, by the Vice-President of the College, Dr. BENJAMIN DE WITT.

The Lectures on Anatomy, the Principles and Practice of Surgery, the Theory and Practice of Physic, and on Chemistry, will be delivered *daily*, and the other courses of instruction *three* times in each week throughout the session, which will continue from the first Monday of November to the first Monday in March.

Although the most liberal and extensive system of medical and philosophical instruction has thus been provided at this institution, the expense of education to the candidate for medical honours is not increased beyond that of any other college in the union; as none of the courses are made indispensably necessary for graduation, and the student is at liberty to attend any course or courses he may think proper; the professors insisting upon the attainments of the candidate, and not upon the number of courses, nor the number of years he may have attended at the University.

By order,

SAMUEL BARD, M. D. President.

JOHN W. FRANCIS, M. D. Registrar.

New-York, September 21, 1813.

Front View of a range of Fixed Furnaces, set up by the Professor of Chemistry, Dr. MAC NEVEN, in the Laboratory of the College of Physicians and Surgeons, N. York.

(See the annexed engraving.)

PLATE I.

A, is a flat sand-heat, to hold evaporating vessels. It consists of two plates of cast iron joined by a rabbet, and

Plate II.

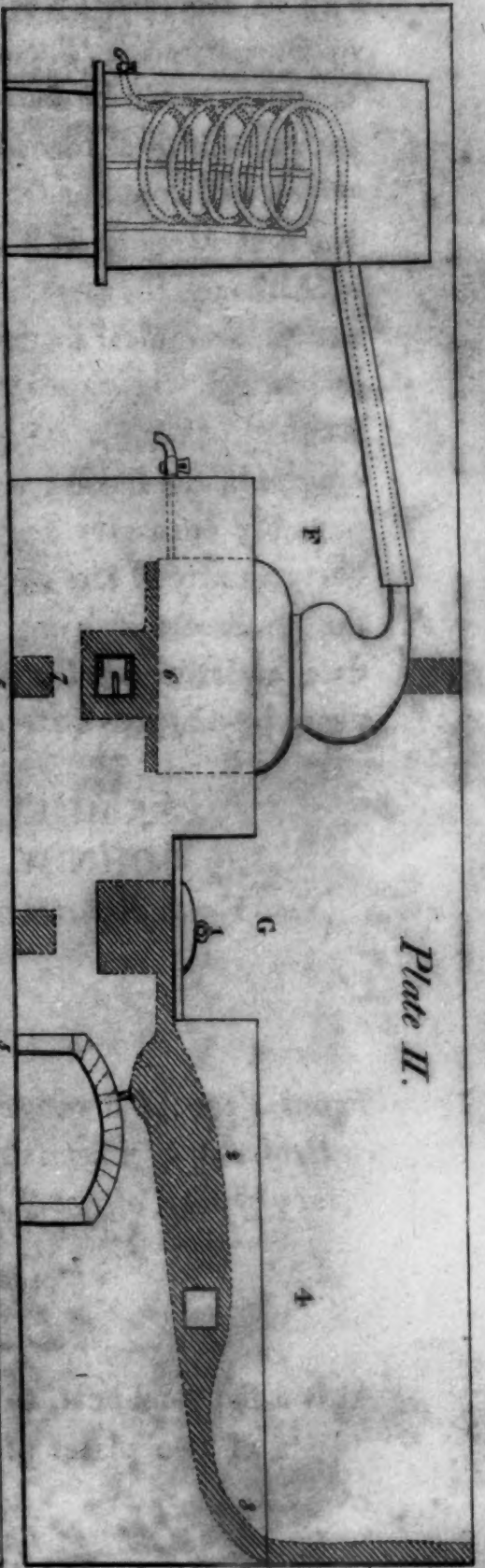
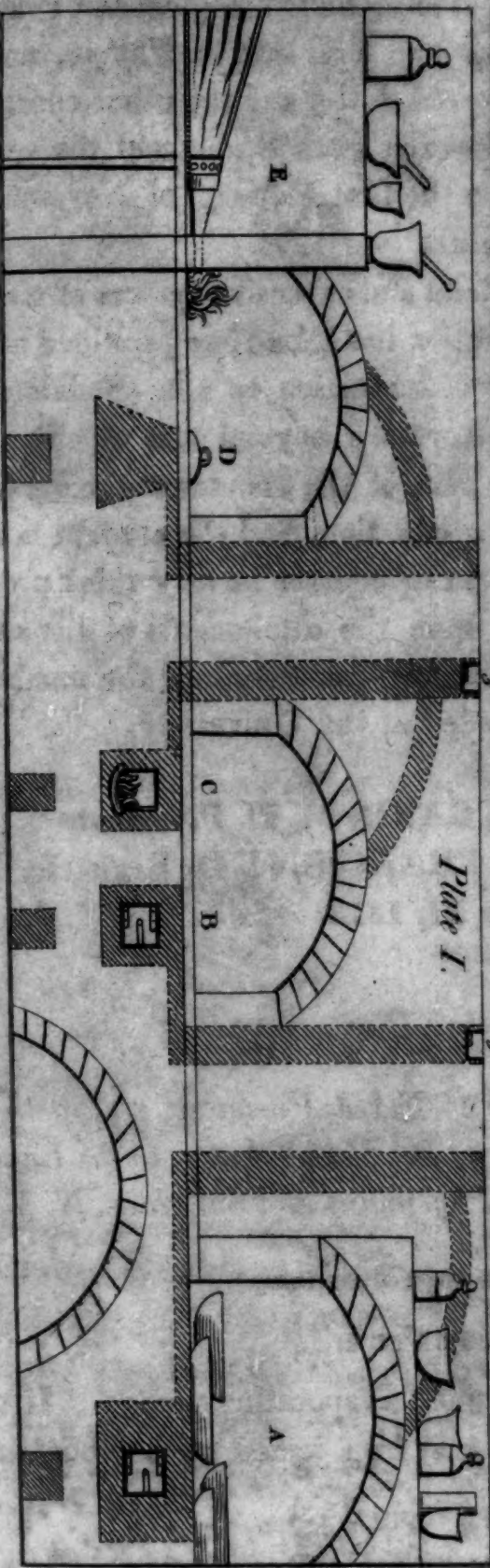


Plate I.



having a border two inches high. It is four feet in length and two in breadth. The fire is made at one end and the flue rises from the other. In their progress to the flue the flame and smoke are made to describe a zig-zag course, and detained as long as possible under the plates. It is separated from the other furnaces by a thin partition of brick, and covered by a light arch, so as to secure it against dust. A curtain may be hung before it for the same purpose. From the middle of the arch there goes off a conduit in an oblique direction, marked by the dotted lines, to convey the vapours into the chimney. The floor over the arch receives some of the furniture of the laboratory.

B, is a furnace with a cast iron pot, four inches deep, to be used as a sand bath, for distillation, or as a boiler. When the pot is taken out, a thing easily done, as it rests upon the brick work by a circular rim, called a flange, the furnace may be used for naked distillation.

C, a muffle furnace. The muffle is introduced by the front opening. The shading shows the pan to hold live coals, before the muffle door.

D, a very powerful draught-melting furnace. The chimney goes off from it horizontally, and the opening is horizontal. It is eight inches square at top, and ten over the grate. This declination causes the fuel to fall regularly downward. It is ten inches deep to the lower part of the chimney.

E, a forge hearth, which, with the blast pipe and bellows, are in the same plane, as in the ordinary smith's forge.

The forge, and the three last mentioned furnaces, are covered with arches pierced with conduits, leading into the flues, in the same way as the sand heat.

PLATE II.

In this a front view is given of another side of the laboratory.

F is an eight gallon still and worm tub. It is of the usual form, and contains a water bath. The same head is so contrived as to admit of being used in distilling with the water bath, or without.

A shallow trough is placed between the still head and the refrigeratory to receive the conduit-pipe, and barely as much water as will wet its upper surface. The object of this contrivance is to aid and render uniform the condensation through cold water, by means of the refrigerating powers of evaporation.

The same mode, on a suitable scale, might very profitably be employed in large distilleries. In these, wherever the liquor is condensed by the operation of pumping, as there are occasional intermissions of work, and sometimes negligence, the temperature is constantly varying in the worm tub. When the temperature is too high, a portion of alcoholic vapour passes away uncondensed, and is easily distinguished by its smell through the apartment. The loss after this manner is frequently very considerable.

The irregularity of condensation causes a corresponding irregularity in the evaporation from the body of the still. At times it is intermitted and the cold air rushes in and retards the process; this air is soon rarified and expelled in strong puffs, which take with them some more of the spirit, and cause a fresh loss.

When the refrigeratory can be supplied by a running stream those evils are avoided, because, in that case, the temperature is always low and equal; but wherever the supply must be occasionally interrupted, the principle em-

ployed in this laboratory would have the most beneficial effect. The more length given to the conduit pipe and trough, the better; and though the water in the latter should be heated even to boiling, it only carries off the faster a greater sum of caloric from the pipe and its contents. The effect of this evaporation, in condensing the spirit, is more rapid than that of cold water, for the water does not so quickly change its place from the contact of the worm. Both modes united have been found very efficacious in promoting a quick condensation of the spirit; in keeping up a uniform degree of evaporation from the body of the still, and preventing that temporary vacuum which occasions the irruption of rarified air in puffs, with the waste of alcohol. Lastly, the liquor is found to run in a cold steady stream, which is the best proof that the process is properly conducted.

G, is a reverberatory furnace. 1, is the fire place; it is constructed like the air furnace, and admits of being used as one. 2, is a vertical section of the reverberatory, in which the floor is seen to incline downwards to the fire, near which the fluid matter is collected in a sort of bason, and let off by a tap-hole in its bottom that traverses the arch.

All these furnaces are supplied with cold air from without the building, by means of channels under the floor, and opening obliquely from behind into the ash pits, the doors of which need not therefore be opened, unless to clean them.

3, the chimney of the reverberatory.

4, a space on the top of the reverberatory, on which any thing may be laid aside.

Over both ranges a screen projects level with the ceiling, and hanging down in a sloping direction to about seven

feet from the floor. Its use is to collect and carry away into the funnel the fumes that might otherwise escape into the laboratory.

5, ventilating doors open into the chimney, and seen here through a break left in the screen.

6, fire place of the still.

7, ash-pit door.

Singular case of suppression of the Urine; in a letter to Dr. DAVID HOSACK, from CHARLES COTTON, A. M. late of the United States Sloop of War, Hornet, dated Boston, May 31st, 1813.

“Mr. W——B—— aged 16, an officer on board the U. S. Sloop Hornet, 18 days previous to labouring under an almost entire suppression of urine, was attacked with the remittent fever, and was convalescent at the time the kidneys became so perfectly torpid as scarcely to afford any secretion. At first he complained of slight pain in the hypochondriac regions, and that he had passed no urine the last 48 hours. His pulse was natural, and appetite good. I immediately examined, and found that there was but little urine in the bladder. As he had been constive for several days, a cathartic was given, which operated favourably. In the evening I directed the tincture of digitalis, fifteen drops, and spirits of nitrous æther, half a drachm, to be given on going to bed, after using the warm bath. He slept well, and in the morning evacuated about a gill of high coloured urine, with some pain along the neck of the bladder and urethra.

There being no symptoms of nephritis, I ordered the most

powerful diuretics, such as squills, nitræ potas. digitalis, &c. and the lumbar region to be rubbed with volatile camphorat. liniment. No unnatural perspiration occurred. He continued in this state for about ten days, evacuating about one gill of urine every third or fourth day. The disorder now assumed a more alarming appearance. The pain increased, his appetite diminished, and a slight febrile paroxysm generally occurred at eight in the evening, and continued about four hours. There were no night sweats; his thirst increased; a solution of the super-tartrit. potass. with a small portion of gin was given him as a common drink. Wine and a vegetable diet, as far as the ship afforded, was also supplied him. Daily use was made of the semicupium and warm mucilaginous drinks.

“Not finding the disease to yield in the least, I put the patient under a course of mercury and digitalis combined, hoping to increase the secretion of the kidneys with that of the glands generally. Camphor ointment was daily rubbed on the loins. Nitric acid was also used. This course was continued until a slight ptyalism was produced, which was gently kept up for some time.

“Finding every thing I had done to have been of little advantage in removing the disease, and that the patient's general health would inevitably sustain great injury by continuing longer under the action of such powerful medicine; as I had used every thing that I had with me from which I entertained any hope, and there was a prospect of our soon being in port, I omitted giving any medicine except the balsam of copaiv. and spirit. æther. nitros.; I also applied a plaster of burgundy pitch upon the loins, and directed wine and the best diet we could procure.

“On our arrival, Mr. B—— immediately went on shore. He was directed to live principally upon vegetables. In the

course of ten days he became better, and in three weeks returned to duty without the least symptom of the disorder remaining. Between fifty and sixty days he evacuated but about one gill of urine every third or fourth day. After he left the ship, no medicine was given but the super-tart. potass.

"There was no appearance of a scorbutic taint of the system. I forbear making any comments."

Observations on the Diseases of Philadelphia, during the Spring and Summer of 1813, extracted from a letter of Dr. W. Currie to Dr. Hosack; dated Philadelphia, August 30th, 1813.

A typhus fever, with malignant symptoms similar to that which had occurred in different parts of Connecticut and Massachusetts during the winter season for several years past, made its appearance toward the latter end of last December, in a village called Cambden, on the Jersey side of the river Delaware, directly opposite to Philadelphia, and between five and six weeks after in the township of the Northern Liberties, adjoining the upper northern extremity of the city. In the course of the winter several cases of it also appeared in different parts of the city, though it had been confined, nearly, if not entirely, to the Northern Liberties and northern extremity of the city. For several weeks after its first appearance there, it spread in a sporadic or scattering manner, and by no means as a disease diffuses itself which depends on an epidemic or general cause existing in the atmosphere. Its being confined almost exclusively to families in indigent circumstances,

where cleanliness and free ventilation could not be attended to, is also an argument against its being derived from a general cause.

With the return of the mild and refreshing breezes of the spring, the typhus, which had been gradually extending during the winter, declined rapidly, and on the accession of warm weather disappeared entirely; owing, I presume, to the more free admission of fresh air into the apartments of the sick. For I am certain from the few cases that came under my own care, and from the slow and gradual manner in which the disease spread, that it was not derived from any cause that was epidemic, or that existed in the atmosphere at large, or out of the sphere of the apartments of the sick, but was derived from, and propagated by, contagion communicated from the sick to the healthy; whatever certain theorists, misled by Sydenham's visionary hypothesis relative to the particular changes in the atmosphere, in consequence of the influence of hostile planets and volcanic eruptions, giving origin to malignant and pestilential diseases, may credit or teach to the contrary.

As the disease declined, the cases that occurred became in general so mild as to resemble the common remittent.

For some time after the typhus made its appearance in this city, several physicians, though in other respects sensible and reputable, considered all the usual diseases of the season that occurred, as typhus, "*sub forma larvata*," and confounding the temporary debility and chill which usually occurs at the commencement of fevers accompanied with, or depending on inflammation of one or more of the viscera, as well as at the commencement of other forms or varieties of fever, with that debility and prostration of strength which are characteristic of the typhus gravior or maligna, through its whole course, without waiting for the disease to

develope its true character, they with rash and inconsiderate hand administered remedies of the most stimulating and inflaming nature, the pernicious consequences of which may be more easily conceived than expressed. More than one case of a person in a state of intoxication, to my knowledge, has been mistaken for a malignant state of typhus, in consequence of which opium and cayenne pepper, with strong brandy toddy were administered in large and frequent doses.

Since the first week of July, which was preceded by an almost uninterrupted continuance of hot and dry weather for the space of three weeks, and afterwards suddenly succeeded by unusually wet and cool weather, which continued till the beginning of August, the dysentery has been more prevalent in this city than it has been known for many years.

That the present dysentery does not partake of the nature of the late typhus, or is not a typhus fever, and, consequently, is not derived from the same cause modified by changes in the sensible qualities of the air, or any peculiarity in the constitutions of the patients, is rendered certain, by its being most successfully treated by the same means which succeeded best in former years, when the typhus fever had preceded it.

Proposed Publication of the Rev. T. Alden.

WE understand that the Rev. T. Alden, A. M. now of this city, proposes to continue the publication of "American Epitaphs and Inscriptions, with occasional Notes." It is well known that Mr. A. has at a great expense and labour

directed himself for a considerable time past to the study of the antiquities of America, and to the collection of such facts as tend to illustrate its early history, and to increase in value and amount its biographical details. The author intends in his future volumes to vary in some measure from the plan adopted in his first, which not long since made its appearance. The chief object of the work, thus improved, will be to furnish a greater variety of particulars interesting to the antiquary, and to the cultivator of American biography, and to gratify the curiosity of the inquirer into the history of the United States. The attainments, industry, and zeal of the author cannot fail to give interest to the proposed publication, and justly entitle him to the patronage of the public.

College of Physicians of Philadelphia.

At the late annual election, held agreeably to charter, the following persons were duly chosen officers for the ensuing year, viz.

President,	Dr. ADAM KUHN.
Vice-President,	Dr. THOMAS PARKE.
Censors,	Dr. CASPAR WISTAR.
	Dr. WILLIAM CURRIE.
	Dr. SAMUEL P. GRIFFITHS.
	Dr. THOMAS T. HEWSON.
Treasurer,	Dr. THOMAS C. JAMES.
Secretary,	Dr. JOSEPH PARRISH.

*Observations on the Weather of the City of New-York, for
the months of July, August, and September, 1813.*

JULY.

The weather of July, this year, like that of the same month of the preceding, was in a remarkable degree characterized throughout for its very great moderation, as to temperature; though we had a greater number of days on which the atmosphere was either overcast or cloudy, or on which we experienced heavy showers of rain. The highest degree of heat was on the 2d, when the thermometer stood, at 7 A. M. at 75; at 3 P. M. at 87; and at 7 P. M. at 74 degrees: the lowest was on the 10th, when at 7 A. M. it stood at 60; at 3 P. M. 62; at 7 P. M. at 54. Rain fell on the 1st, 2d, 4th, 6th, 9th, 14th, 15th, 18th, 19th, 20th, 22d, 23d, 24th, 27th, 28th, and 30th; wind frequently from the east. Perhaps a season is not recollected in which we had a greater quantity of rain and moisture immediately succeeding to the oppressive heat of June as was witnessed this month.

AUGUST.

The greater part of this month the weather was clear and agreeable: the thermometrical heat, though on some days somewhat lower than we are accustomed to experience at this season, was upon the whole such as is generally observed. The lowest degree of heat was on the 18th, when the thermometer was no higher than 59, at 7 A. M.: at 3 P. M. at 74; and at 7 P. M. at 68: the highest degree was on the 6th, when the mercury stood at 7 A. M. at 74; at 3 P. M. at 87; and at 7 P. M. at 76. There were many days on which the thermometer rose above 80. Rain fell in great quantities on the 7th, and also on the 16th and 17th: on

the 24th we had a great shower, accompanied with heavy thunder. Rain fell on the 28th, 29th, and 30th.

SEPTEMBER.

The temperature of the weather of September was considerably lower than that of August; particularly during the latter part of the month. Though there were many clear and pleasant days, we had no inconsiderable number on which either great quantities of rain fell or the atmosphere was overcast or cloudy. The highest range of the thermometer was on the 12th, when the mercury stood at 7 A. M. at 69; at 3 P. M. at 79; and at 7 P. M. at 76. From the 15th the weather became gradually cooler: on the 26th the thermometer stood, at 7 A. M. at 53; at 3 P. M. at 65; and at 7 P. M. at 61 degrees. On the 30th, at 7 A. M. at 51; at 3 P. M. at 54; and at 7 P. M. at 52: a degree of cold not often witnessed at this season. Rain fell on the 10th, 17th, 18th, 24th, 28th, 29th, and 30th.

Quarterly Report of the Diseases which prevailed in the city of New-York, during the months of July, August, and September, 1813.

By a reference to the preceding volumes of this work, the reader will find that notwithstanding the presence of all the requisites which the advocates for the domestic origin of yellow fever have considered necessary to the production of that pestilential disease, the city of New-York has for several years past entirely escaped the ravages of that malignant visitor.

We have enjoyed a similar exemption in the present year,

not only in New-York, but, we believe, throughout the United States. Yet such was the heat during the month of June, in the city of New-York, that the thermometer frequently rose above 80 degrees, and on the 18th, as high as 91 degrees of Fahrenheit.

At Raleigh, North Carolina, it rose in the shade to 102 degrees,* and in many parts of the United States, the heat was so intense, as to interrupt the usual labours of the season; the same month and that of July were no less remarkable for their moisture than their temperature.

In August both heat and moisture were combined, and these too aided in their operation by an exceedingly filthy state of our slips, our streets, and our market-places. Such, indeed, in the past season, has been the neglect of our streets, that our public officers were repeatedly called upon through the medium of the newspapers to attend to the removal of those nuisances which have hitherto been deemed the sources of pestilence. In the month of August the quantity of rain that fell was so great, that many of the cellars of Pearl and Water-streets were filled with water, as in the memorable summer of 1798. But notwithstanding the concurrence of all these circumstances, no yellow fever has been engendered, a fact which, like many others this work has recorded, will be passed over in total silence by the advocates for the home-bred production of yellow fever, but which admits of easy solution when we take into view the limited intercourse which latterly has existed between the United States, the West-Indies, and South America, and, we may add, the faithful execution of our improved system of quarantine laws.

* See the last quarterly report of the weather and diseases.

But although we have escaped the more malignant yellow fever, we have had our usual proportion of febrile diseases in the ordinary form in which they prevail in this climate. Dysentery has been more than usually prevalent both in the city and country; among the poor especially, where cleanliness was not observed, the disease was communicated successively to the members of the same family, and to those who held intercourse with them; but where the air about the patient was preserved pure by the removal of his discharges, frequent change of cloathing, and free ventilation, the disease was extinguished without being communicated even to a second person in the same family in which it originated. Mr. H—— of New-Jersey, about 65 years of age, after a visit to this city in August, upon his return home, was seized with dysentery, attended with all its characteristic symptoms. During his illness, which proved fatal to him, several members of his own family, and many of his neighbours, who visited him, contracted the disease; doubtless owing to neglect in not instantly removing his discharges and purifying the air of his apartment.

Excepting in persons far advanced in life, the disease generally yielded to the usual remedies, viz. the early use of an emetic, emptying the bowels by a cathartic of glauber's salts or castor oil, nauseating doses of antimony or ipecacuanha, and small injections of starch and laudanum, with corresponding attention to the diet and regimen of the patient.

In some instances, in the early stage of the disease, blood-letting and blisters became necessary for the removal of the inflammation; the spiritus mindereri and laudanum, the bowels having been previously emptied, were also in many cases prescribed with great advantage.

Among the diseases of the last three months we have also

had occasion to prescribe for several cases of acute rheumatism, a complaint not usually met with in the warm seasons of the year. Another disease nearly allied to rheumatism, but which most physicians consider as idiopathic, has also fallen under our notice during the last month. The disease referred to is *Tic Douloureux*, or *Neuralgia*, as it has been more correctly denominated by Professor Chaussier.

This affection of the nervous system has attracted the attention of physicians, as a distinct disease, at a much earlier period than is generally supposed.

It was first noticed as such by Dr. Daniel Ludwig in 1673;* by John Hartmann Degener, a practitioner at Nimeguen, in 1724;† by Andree, a French surgeon in 1756,‡ and by Dr. John Fothergill of London, in 1776;§ by the latter it is described under the appellation of a *painful affection of the face*.

By most physicians who have written upon this disease, and even by systematic writers, it has been generally considered as seated in the second branch of the fifth pair of nerves, or in the portio dura of the seventh.

Mr. Abernethy, however,|| has related a case which was seated in the nerves of the ring finger of the left hand. Mr. Home in his Croonian lecture** has also related some instances of this disease, the effect of an injury to the thumb.

* Miscell. Nat. Cur. Dec. 1. Ann. III. Observ. 252. "de dolore superciliari acerbissimo."

† Acta Natur. Curios. "de dolore quodam perraro acerboque maxillæ sinistræ partes occupante et per paroxysmos recurrente," vol. 1. p. 347.

‡ Observations Pratiques sur les Maladies de l'urethre et sur les plusieurs fautes convulsifs, a Paris, 1756, p. 318, &c.

§ Med. Obs. and Inq. vol. 5th.

|| Surg. Observ. vol. 1. p. 244.

** Phil. Trans. for 1801.

In the Edinburgh Medical and Surgical Journal, a case is recorded by Dr. Verpinet as occurring in one of the nerves of the fore arm, the consequence of a wound from a knife.*

The first case of this disease which fell under the notice of the writer was that of the late Mr. Charles Apthorpe, of New-York, in 1794. The disease was seated in the lower as well as the upper jaw, and occasionally, as in the case of Mr. Bosworth, related by Mr. Leigh Thomas,† embraced all the three branches of the fifth pair of nerves. Previously to this affection of the face and head Mr. Apthorpe had suffered many years from regular gout.

In this case, the neuralgic affection was probably induced by the same cause, as the gout was totally suspended upon the appearance of the latter disease: Mr. Apthorpe had then passed the 60th year of his age.

In three other cases the disease occurred in females between 30 and 40 years of age; in all three the nervous temperament was strongly marked and predisposed them to the complaint; in one the ophthalmic branch of the fifth pair of nerves was exclusively the seat of the disease, each paroxysm being attended with violent action of the muscles of the eye, a compression of that organ and a copious discharge of tears; this lady for several years previous to this affection, had suffered repeated attacks of acute rheumatism, which never recurred after the appearance of her new complaint.

In the second, the nerves extending over the side of the head, as in hemicrania, were the seat of the disease. In the

* Vol. 3. p. 14.

† The very interesting case of Mr. Bosworth the reader will find recorded by Dr. Darwin, in which all the three branches of the fifth pair and the several branches of the auditory nerve were successively divided before the patient obtained relief. See *Zoonomia*, 3d edit. Lond. vol. 3. p. 218.

third, it commenced in the fifth pair, but soon involved the whole nervous system, producing convulsions, to subdue which required the most liberal use of opium and æther. In all of these cases the patients suffered repeated returns of the disease, especially in the fall, winter, and spring; but by the use of tonic medicines, exercise, the cold bath and attention to diet and mode of life, at the same time avoiding exposure to the changes of the weather, they have for some years past escaped the usual visitations of this distressing malady.

Another lady far advanced in life, in consequence of an injury of the extremity of the fore finger of the right hand, has endured for several years the most severe paroxysms of this complaint, not only affecting the branch of the injured nerve, but those distributed upon the fore arm, and occasionally extending to those of the neck. In August we were called upon to visit Mrs. S—— aged about 52; she was confined to her room by an attack of neuralgia seated in the fourth toe of the left foot. She was first affected with this disease about three years since; but knows no cause to which she can ascribe it. She has made use of blood-letting, opium, warm bathing, and fomentations without effect; and upon one occasion the pain was so acute that she plunged the part affected in boiling water, but without relief. We directed the toe to be involved in a blister, which was continued to the part twenty-four hours, but this like the other means that had been resorted to, was of no avail. As there is a manifest resemblance between the severe pain frequently suffered in acute rheumatism, and that of neuralgia, it occurred to the writer that benefit might be obtained by the use of the volatile tincture of guaiac: a teaspoonful of this medicine was accordingly directed to be taken every two hours in half a glass of wine. After taking a few doses the patient experienced more relief than from

any other medicine she had taken. Since that time, whenever she has the least irritation in the affected part she has immediate recourse to the tincture, and uniformly with relief.

In the Medical Museum of Philadelphia,* Doctor Gardner Jones, a physician of New-York, in two letters addressed to Dr. Rush, has published a very minute account of his sufferings from this disease, which was seated in the nerves of the face, and attended with the ordinary symptoms. In those communications, Dr. Jones remarks "that of all the physicians of this city with whom he had conversed, but one professed ever to have seen a case of the disease prior to his own." "That he could not recollect more than one or two who could recognise its singular features as described in any author they had read." "That to most practitioners even those of eminence, the name itself was a perfect novelty;" but adds "that the singularity of his case has made so much talk and noise in this city, that both the name and symptoms are familiar to every physician of any respectability, and almost as much so to the citizens in general."

After such statement, Dr. Jackson, of Boston,† may well observe "that it is not a little remarkable that the disease seems to have been quite unknown in the city of New-York previous to the case referred to."

From the cases now related by the writer of this article, it will be found that without arrogating to himself any greater respectability or eminence than those physicians whom Dr. Jones consulted, that he has long been conversant with

* Vol. 7. p. 70.

† See his excellent paper on this subject in the *New-England Journal of Medicine and Surgery*, vol. 2. p. 105.

the complaint in question, and he can add in behalf of some other physicians of this city, and those not a few, that they have been no less familiarly acquainted with this *novel* affection of the nervous system, as it appeared to Dr. Jones and those to whom he applied for relief.

From these facts it also appears that neuralgia is not confined to the nerves of the face as most physicians have supposed; but that it is frequently connected with the general condition of the nervous system and that we are not in all instances to rely upon the division of the nerve affected for the cure, but to direct our remedies according to the temperament of the patient, the peculiar condition of body and vice of the habit from whence the disease may have originated. Dr. J. Fothergill has in some instances traced it to a cancerous or vitiated habit of body and in three cases has removed the disease by the use of hemlock: some French physicians have cured it by mercury,* believing that in some cases it may have arisen from a syphilitic taint; others treating it as rheumatism, have employed calomel and opium with success.† As the complaint for the most part occurs late in life, and in females most generally after the natural cessation of the menses, or, if in early life, from the suppression of the evacuation, may it not also derive its origin from the state of the blood-vessels, an arthritic humour, or that condition of body which induces rheumatism,‡ especially in persons of the nervous temperament, who are generally the subjects of neuralgia? In cases of

* See *Recueil periodique de Medicine*, Paris, 1798, tom. iv. See also *Edin. Med. and Surg. Journal*, vol. 3. p. 273.

† *Edin. Med and Surg. Journal*, vol. 4. p. 306.

‡ See two cases thus induced related by Dr. Pearson, *Edin. Med. and Surg. Journal*, vol. 3. p. 272.

this nature, the lancet, warm bathing, alterative drinks, and the volatile tincture of guaiac, with other means calculated to operate upon the whole system, may, according to the peculiar circumstances of the case, take the place of the knife now resorted to for the division of the nerve affected, and which, in some instances, disappoints both the patient and practitioner.

University of Pennsylvania.

Dr. Barton, late Professor of Botany and Materia Medica in the University of Pennsylvania, has been elected Professor of the Institutes and Practice of Physic and Clinical Medicine in the place of the late Dr. Rush. Dr. Chapman, lecturer on Midwifery, &c. has been elected to the professorship of Materia Medica.

RECENT BRITISH PUBLICATIONS.

Pinkerton, the geographer, has just published a work, entitled, *Petralogy, or a treatise on Rocks*, enriched with numerous engravings, in 2 vols. 8vo.

The third volume of the *Medico-Chirurgical Transactions* has appeared.

N. C. Pitta, M. D. has published a treatise on the influence of Climate on the Human Species; and on the Varieties of Man resulting from it: including an account of the Criteria of intelligence, which the form of the head presents, and a sketch of a rational system of Physiognomy as founded on Physiology. 8vo.

Dr. Thompson, the author of the system of Chemistry, has just published the *History of the Royal Society*, in quarto.

Professor Playfair has published the heads of his Lectures, delivered at the University of Edinburgh, under the title of *Outlines of Natural History*, in 8vo.

A *Practical Treatise on the Morbid Sensibility of the Eye*, commonly called weakness of sight, has appeared, composed by John Stevenson, of the Royal College of Surgeons, London, 8vo.

The *General Zoology* of Dr. Shaw has arrived at the 8th volume, being the 2d volume on Birds.

The eleventh volume of the *Transactions of the Royal Irish Society* has lately appeared. Quarto.

Dr. John Thompson has recently published *The Edinburgh New Dispensatory*, containing the elements of Materia Medica and Pharmacy, in one vol. 8vo.

Dr. Munro, jun. F. R. S. has completed in one volume large octavo, the *Morbid Anatomy of the Human Gullet, Stomach, and Intestines*.

The first fasciculus of the *Morbid Anatomy of the Liver*, by Dr. Farre, has made its appearance in 4to. with superior coloured engravings.

RECENT AMERICAN PUBLICATIONS.

An Eulogium upon Benjamin Rush, M. D. Professor of the Institutes and Practice of Medicine, and of Clinical Practice in the University of Pennsylvania, who departed this life April 19th, 1813, in the 69th year of his age. By David Ramsay, M. D. member of the South-Carolina Medical Society. Philadelphia. Bradford & Inskeep, 8vo.

Medical Papers communicated to the Massachusetts Medical Society. Part III. vol. II. completing the second volume published by the Society. Boston. Wait, 8vo.

A View of the Mercurial Practice in Febrile Diseases. By John Warren, M. D. President of the Massachusetts Medical Society and Professor of Anatomy and Surgery in the University of Cambridge. Boston. Wait, 8vo.

The American New Dispensatory. Second Edition, greatly enlarged and improved. By James Thacher, M. D. Fellow of the Massachusetts Medical Society, of the American Academy of Arts and Sciences, and Honorary Member of the Georgia Medical Society. Boston. Wait, 8vo.

Memoirs of the Columbian Chemical Society. Philadelphia, 8vo.

The New-England Journal of Medicine and Surgery and the Collateral Branches of Science. Conducted by a Number of Physicians. No. III. vol. II. Boston, Bradford & Read, 8vo.

The Eclectic Repertory and Analytical Review, Medical and Philosophical. Edited by a Society of Physicians. No. IV. vol. III. Philadelphia. Dobson.

The Emporium of Arts and Sciences, (New Series,) vol. I. No. II. for August, 1813. Conducted by Thomas Cooper, Esq. Professor of Chemistry, Mineralogy, &c. in Dickinson College, Carlisle, Penn. Philadelphia. Kimber and Richardson, 8vo.

An Historical Sketch of the Origin, Progress, and Present State of the College of Physicians and Surgeons of the University of the State of New-York, (with a view of the College.) New-York. C. S. Van Winkle, 8vo.

Observations on Vision. By David Hosack, M. D. F. L. S. Read before the Royal Society of London, May 1st, 1794, and published in their Transactions of the same year. Communicated to the Society by George Pearson, M. D. F. R. S. &c. New York. Van Winkle, 8vo.

A Gazetteer of the State of New-York; carefully written from original and authentic materials. Arranged on a new plan. In three parts. By Horatio Gates Spafford, A. M. author of a Geography of the United States, Member of the New-York Historical Society, and Corresponding Secretary of the Society of Arts. Albany. H. Southwick, 8vo.

OBITUARY.

DIED, at Philadelphia, on the 23d of August last, after a short illness, Alexander Wilson, Esq. author of the American Ornithology, and other literary works.

TO CORRESPONDENTS.

Several original Papers, and a Review of Dr. Thacher's New Dispensatory and of Dr. Warren's work on Mercurial Practice, are postponed until our next.